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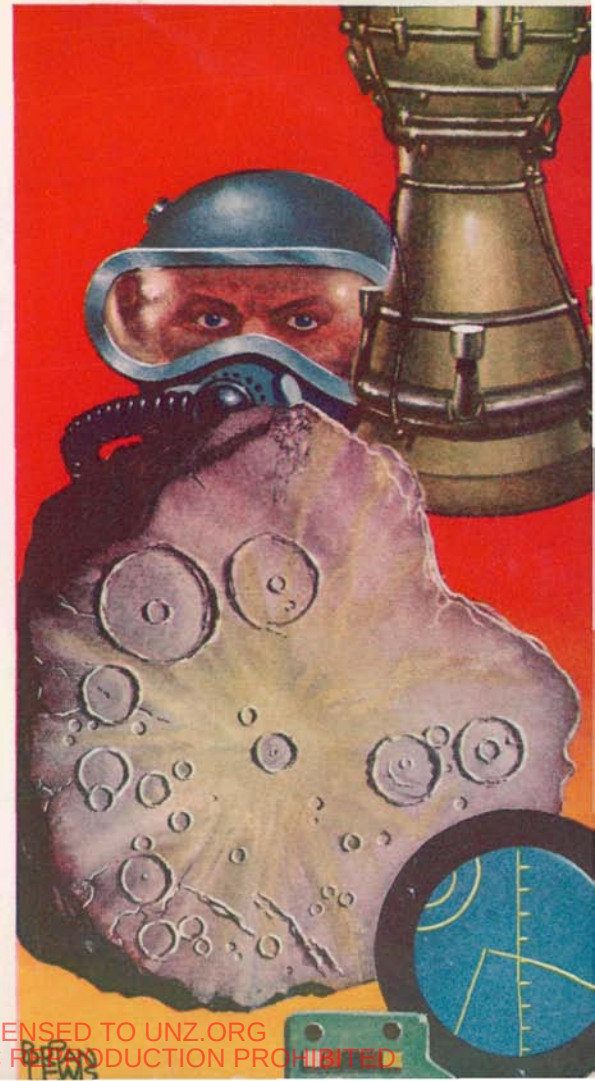

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by JAMES WHITE

Like a silver ghost the ferry rocket slid out of blackness and, briefly transiting the dazzling globe of the five thousand miles distant Earth, checked its motion relative to the assembled passenger units with a short, savage burst of deceleration. Watching from the open airlock of the Engine unit, Captain Woodhill signalled to the spacesuited figure of Sister Gallagher beside him and together they launched themselves towards the waiting ferry. Because they were both considerate types who understood and sympathised with the feelings of that rocket's pilot at this moment, they opened their suit motors to full thrust and brought into play every ounce of skill in their possession in an effort to shorten, if only by seconds, the time taken for the trip across.

A very few minutes later Woodhill hit the side of the ferry rocket with a gentle thump and jetted across to the already opened cargo hatch. Closely followed by Gallagher he entered and made a slow dive nosewards along the narrow well of the ship. A long row of collapsed passenger capsules, suspended like grey, lumpy cocoons in their specially braced and sprung containers, slid past until they came to the inner control-room lock. While they were negotiating this a series of

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tiny shocks felt through the soles of their boots, told of the arrival of an unloading crew.

While unfastening his face-plate inside, Woodhill examined the control-room's two occupants.

Lying in one of the acceleration couches was a young man who must be Cummings, the new Steward. He was fully encased—except for the helmet—in the usual all-plastic spacesuit. His mouth was slack and his eyes dull and unfocussed, and altogether his degree of consciousness was very little better than that of the passengers being unloaded aft. Woodhill sighed.

He understood the necessity for it, of course. The new Steward would have been thoroughly trained and tested by Earthside psychologists and was perfectly fitted for his life and duties in space. But repeated training flights into space were impossible for physical as well as economic reasons, so that a man called upon to leave his ship and dive across half a mile of nothing towards a living capsule which might be just barely visible in the distance, and do it on his very first time outside a ship, had to be practically saturated with tranquilisers and other psychological cushioning to withstand the shock.

But the new Steward was Gallagher's problem.

The other man in the control-room was also young, but conscious—far too conscious, perhaps, of the things going on around and inside him. The ferry's pilot looked pale and strained, and kept pulling himself backwards and forwards along the handrails and radiating anxiety and impatience from every line and feature in his face. Like a man, Woodhill thought wryly as he watched the other's quick, nervous movements, who is trying to keep dry in a rainstorm by running between the drops.

But there was no way to avoid the radiation which sleeted silent and unfelt through this all-metal ship. The business of moving about was only a pilot's superstition. He might just as well sit down or stand still.

" 'Night, Lieutenant," Woodhill said to the pilot when he had his face-plate open. "This is the last batch, anything about them we ought to know?"

" 'Night, sir," said the other. He jerked his head in the direction of the

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passenger compartment and added, "Girl in there had to have treble the usual dose. Bad case of nerves, apparently."

"A claustrophobe?" said Woodhill sharply.

The pilot shook his head. "They checked her medical and psych records and there's nothing like that. She's a biologist joining her husband on Mars. These over-intelligent types scare themselves silly over nothing, the doctor said. He had to give her extra sedation, though . . ."

Sister Gallagher, who was bending over the new man, straightened up and asked for the passenger's name and capsule number. She noted them in the pad strapped to her arm, then resumed chatting quietly and reassuringly to the Steward.

Woodhill could feel a constant, irregular vibration in the hand which gripped the back of the pilot's acceleration couch, a clear indication that the work of detaching the folded-up passenger capsules from their protective frames was well advanced. And in the direct vision port he could see a pattern of stars drifting slowly towards the edge, which meant that several of the passengers had already been thrown away from the ship and the reaction had caused a slight spin to be set up.

Now that the conversation had dried up the pilot was beginning to look anxious again.

"How are they making out with the latest anti-gravity ship?" Woodhill said suddenly. "I get some of the technical publications, of course, but there must be a lot more literature on the subject available on Earth . . . ?"

The Captain wanted to know what they were saying and thinking as well as what they were writing about the anti-gravity ships. He would also have liked full, detailed information on such things as the latest-model cars, fashion trends and current slang expressions—with their derivations—as well. But there was never enough time to pump the ferry-pilots as thoroughly as he would have liked, so he had to rely for his information on the few passengers on every trip who were not so overcome by awe of him that their vocal cords went into a state of temporary paralysis.

Captain Woodhill had a horror of growing old, of slowly slipping into habits of thought and speech which would harden into an impenetrable, inflexible shell around his mind; of becoming a sort of or-

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ganic tape-recorder which reeled off sections of his life when the proper button was accidentally pushed, whether the pusher wanted to listen or not. He had a theory that if he could keep interested in things and continually adjusting to new situations and experiences—keep exercising his mental equipment, in short, on everything in sight—then no matter what his body did his mind would not grow old.

The Captain was pushing eighty now, he couldn't afford to relax. But the pilot, his mind very obviously elsewhere, was not disposed to chat. Feeling both irritated and sympathetic at the same time, Woodhill fell silent.

As far back as the days before the first manned satellite had been put up, the radiation Belt had been known. A layer of ionisation whose strongest concentration occurred between 30 degrees North and South Magnetic it extended—depending upon sunspot activity and other factors—at times outwards to a distance of six thousand miles. With a radiation level in the region of 50 Rontgens—and 15 R was considered the maximum safe daily dose allowable for atomic pile technicians and such—a ferry pilot naturally had to take his load through it fast. But getting through the radiation layer quickly enough to avoid a lethal dose was not the last of the pilot's troubles. There were the cosmic rays.

Direct cosmic radiation, except when encountered constantly over very long periods, was harmless. But the secondary radiation released when one of these fast, super-heavy particles struck the metal hull of a ship was a different matter. Yet the effects were unfelt and unseen to the person concerned . . . *then*. It was only when a pilot's children and grandchildren were born that the effects became horribly apparent.

So that it was not a selfish fear for his own safety which troubled the ferry-pilot, Woodhill knew. It was the thought of the terrible freak he would bring into the world should he exceed the safe time-limit which he was allowed to stay in orbit.

The Captain suddenly took pity on him. With a gesture which took in the clock, the stars slipping past the viewport and the bumps and vibration being conducted through the control-room's floor and bulkheads, he said, "This is a very experienced unloading crew. Another few minutes should do it."

Immediately the other's face cleared. He began to talk so quickly

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that the words fell over each other. First he apologised for the fact that he might have seemed short and impolite to the Captain and Sister —not realising that ferry-pilots in orbit were *always* that way—and then went into a perfect babble of small-talk.

". . . And I almost forgot," he continued as he handed Woodhill the box containing the special lightweight copies of the books the Captain had ordered, together with his last-minute instructions from the ground. "The details are inside. You're to watch for an alien spaceship again—supposed to be made of glass, this time! It was Patterson on Ganymede who sent in the report. They're replacing him as soon as possible, of course.

"That sort of thing happens so often—flying saucer sightings, alien spaceships and the Lord-alone-knows how many other wild imaginings." He hesitated, then added awkwardly, "I suppose it's the loneliness which gets them."

"Yes," said Woodhill.

The Captain was thinking that it had been tactful of the pilot to attribute Patterson's insanity to loneliness and not to senile decay. He had known ex-Captain Patterson—ex- because an accident in the airlock had lost him his arm. But Patterson had elected to take over the one-man Jupiter Observatory on Ganymede, and had looked after the equipment there and played chess with anyone within radio distance for a great many years. Even Captains and ex-Captains wear out eventually, however, and the process nearly always started at the brain.

A glass spaceship, Woodhill thought. Good old Patterson. Mad, of course, yet logical to the end.

His brief reverie was interrupted by a message from the Steward-in-Charge of the unloading party reporting that they were taking out the last passenger now. Woodhill relayed the news briskly to the others and stood aside to allow Gallagher and the new man to preceed him through the lock. The pilot saluted, a courtesy which was optional in free fall conditions, with his eyes jerking sideways towards the clock. The Captain returned it gravely, closed his face-plate and left.

He was only three hundred yards away when the Ferry's motors flared at minimum thrust, pushing it clear of the passenger assembly preparatory to its piling on maximum deceleration for the return trip.

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He overtook and passed Gallagher and the new man on their way to one of the Steward's Recreational globes, and a succession of passengers tumbling slowly through space, blissfully unaware of the apparent carelessness with which their precious persons were being tossed around. But they were on a divergent course to his own and soon he was alone, heading for the squat, awkward shape of the Engine unit.

It resembled a cross between a space-going daddy long-legs and a horribly mutated wasp, the Captain thought. As well as the spidery framework which stretched out seventy feet from around the middle of its hull—which was designed to hold the towing cables free of the tail flare—it was painted in garish, zig-zag stripes of black, red and yellow to warn everyone that this structure was made of metal. This warning did not apply to the Captain, or Gallagher, or his two Engineers. Children and grandchildren, except for those already in existence, would never be a problem to them.

When Woodhill entered the control-room and climbed out of his suit, Hutton, the Second Engineer, was at the large vision screen co-ordinating the efforts of the Stewards to prepare the passengers of the fourth ring for sleep. Hutton waited until the Captain was strapped into the couch beside him, then reported, "The cone is in thrust position and hooked on, except for a couple of passengers from the last batch who are being attached to Ring Five now. Rings One to Three are under sedation too, of course, and the passengers in Four—the ones who have been up here the longest, that is—have been fed.

"Those that could eat," he added, smirking.

One of Hutton's duties when he wasn't acting as the vessel's radioman or playing canasta with the First Engineer was to instruct the Stewards—especially new men—in their work and duties, and he had the irritating habit of telling the Captain things which Woodhill already knew or could see for himself. He was inclined to garrulity and repetition in his conversation, and altogether he was the sort of person that the Captain was deadly afraid of becoming himself.

Woodhill said, "How are we for time?"

"Thrust in twenty-eight minutes," Hutton replied. "Will you talk to Ring Four now?"

The Captain nodded and pulled the PA microphone from its clip. Then he paused, looking out at his sprawling, nameless command.

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II

From outriggers on the Engine unit, four thick and immensely strong cables of woven plastic led out to Ring One, were anchored solidly to it at equal intervals around its circumference, then led on and were similarly connected to the four other rings. Number Two, which was three hundred feet across, was fifty feet wider than One, and Three was wider than Two and so on down the line. Under thrust and in its proper towing position the Engine unit formed the apex of a long, narrow cone along whose open centre the exhaust gases passed harmlessly. The rings themselves were comprised of several thicknesses of plastic tubing—the tough, flexible and springy tubing which, when the rings were dismantled at the termination of thrust and the passengers were permanently awakened, would carry the air supply to the inflated passenger capsules.

At the moment all the capsules, with the exception of those in Ring Four, were collapsed and drifted at the end of the short cables connecting them to their parent rings. Four towing cables, five gigantic but incredibly thin and springy plastic hoops and literally miles of rope scarcely thicker than a finger which held the capsules to the circumference of those hoops. It seemed to be a fantastically risky method of transporting nearly two hundred passengers across sixty million miles, Woodhill thought; but he knew that this apparently fragile structure would hold under many times the maximum stress which its Engine unit could put upon it.

The Captain cleared his throat, thumbed the mike switch and began to speak.

"Good Night, ladies and gentlemen, this is the Captain," he said pleasantly. "We shall begin to apply thrust in a short time, but before the Stewards come around with your sedatives there are some things I would like to tell you, even though most of you will have read up on them before deciding to make the trip. They are important things and bear repeating.

"First," he continued, "the acceleration. This will be maintained at one quarter-G for approximately eight days, with a break of four hours in every twenty-four for meals and so forth. This twenty-hour

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fast will do you no physical harm because you will be both asleep and resting in a gravity pull much lighter than normal, so that the fuel demands of your bodies will be correspondingly reduced. During the free-fall period of the voyage you will be amazed at how little you will eat.

"Second; cosmic radiation."

Woodhill paused to give emphasis to the words which would follow, then went on, "I can assure you, absolutely and inequivocably, that during the six weeks you will be en route you will have nothing to fear—then or at any later period in your lives. A matter of weeks is much too short a time for the natural radiation to cause mutational changes, and there will be none of the more dangerous secondary radiation present at all. Towing cables, ring structures and your living quarters with all that they contain are all-plastic fabrications.

"They can do wonderful things with plastics these days . . ."

Woodhill continued with the many times repeated pep-talk with only part of his mind, the rest of his attention being concentrated on the gradually diminishing activity along the rings. One and Two were ready to go; they looked like two slightly imperfect circles of mismatched beads which wavered gently with the tiny, conflicting motions given them by the vessel's personnel. The grey, lumpy cocoons which were the collapsed and folded-up passenger capsules made up the greatest number of beads on the strings, but they were broken at intervals by the huge white pearls of the food and water storage globes. He could also see the Stewards-on-Watch for each ring, wearing their duration suits, hooked on and waiting. Ring Three would be ready in a few minutes, Five would be close behind.

The Captain thought suddenly that he should cut the talk as short as possible. Twenty minutes wasn't much time for Three and Five to be finished off and all the capsules in Four to be deflated.

". . . And you've had a chance to see how comfortable a twenty-foot living capsule can be. Everything is plastic, but *tough*. You can punch the transparent material of the bubble and it will simply give with you. It would take a knife, a very *sharp* knife, to put a hole in it. And all the fittings and the lock mechanisms are plastic, too, no matter how metallic they look. The only piece of metal in the whole construc-

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tion," Woodhill added with a small laugh, "is the receiver which carries my voice. But don't worry about that. It is miniaturised and the total weight of metal used is less than half an ounce, which is too little to count.

"One last request," the Captain ended, "co-operate with the Stewards who will shortly be coming to you. Probably some of you feel pretty miserable at the moment. Gravity sickness is bad at first, I know. But it leaves you very quickly, and then you realise why some of us prefer to live and die in space rather than on Earth. Good Night."

As Woodhill switched off Hutton snorted but made no other comment. The Captain gave him an irritated look. It was true that many Captains and Engineers preferred to live and die in space, and not just because their aged and enfeebled bodies could not withstand the three or four G's deceleration necessary to land them on Earth. There had been a time when he could have returned without it killing him, but he had chosen to stay. Only occasionally did he wonder if he had done the right thing.

There was a sudden thump and a scuffling sound from the hull outside and shortly afterwards Sister Gallagher came in, her suit radiating cold all over the control-room for a few minutes. Unlike the others she retained her spacesuit when she strapped in and only opened her face-plate. If any of the passengers on Four objected to being put to sleep it would be Gallagher who would have to talk them round. She was very good at that.

Woodhill hoped that there would be no need for her charm to be tested on this occasion; if she had to go out to Ring Four again, the blast-off would be delayed.

"We'll have to treat our new Steward as a passenger for a while, I'm afraid," she said, her eyes on the activity around Four. "At least until after acceleration. Pity, those men could use some help."

Gallagher possessed the severe, fragile beauty of an octogenarian nun, Woodhill thought, as he looked across at her; and a gentle, well-bred quavering voice which went with it. But that voice, which had terrorised, browbeaten and inspired the nursing staff of one of Earth's largest teaching hospitals, could be geared to the production of butter and sulphuric acid with equal facility. At the moment it was in neutral.

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"Probably the best thing," Woodhill replied a little absently. "If we can't use him at least he won't be getting in the way."

He was wondering at what age a hospital retired its Matron. Gallagher had been around for a long time, but would divulge her age to nobody. Hutton swore that she was a hundred at least, and Woodhill thought that that might not be too much of an exaggeration. He could, of course, find out from the Earthside authorities if he bothered to take the trouble. But a direct question like that involving the age of one of his crew might be taken as a hint that the person was becoming inefficient because of that age, and that was definitely not the case with Gallagher. One had to be careful of words and actions, however, for the authorities on Earth were very distrustful of the old men and women who made space-travel and interplanetary colonisation possible.

There was so much expensive equipment involved, and the borderline between efficiency and the complete irresponsibility of second childhood was very narrow.

The sight of the clock on Hutton's panel put a sudden end to his musings. Seventeen minutes to go. "Reactor Room," he said briskly, "report, please."

"Ready to go when you are," said the Chief Engineer in the bass growl he used for a voice. Carrington, who enjoyed being called 'Slim' because he very definitely wasn't, spoke from the control cubicle of the reactor in the stern section. After a moment he added cajolingly, "I could do with a sandwich . . ."

Woodhill acknowledged the first sentence and ignored the second. In several places along the circumference of Ring Four the taut, shining globes that were the inflated living quarters were wrinkling, shrinking and collapsing in a fog of released air. Inside them the passengers —encased in spacesuits as an added protection and with a self-regulating air supply—and the solid plastic fittings were being bundled up together in the thin sheeting of the envelope.

Gallagher drifted up from her couch and dived gently sternwards. "I can't stand cruelty to animals," she said as she was leaving, "and his poor tape-worm must be starving . . ."

"Ham, please," called Carrington.

The Chief Engineer did not have an excessive appetite despite his

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bulk, the Captain knew, but at the moment he was alone and within a few yards of a nuclear reactor. Power piles were considered to be the safe gadgets these days, but this one might be the oft-quoted exception. Woodhill knew that lots of people munched sweets, chewed gum or stuffed themselves with various edibles in the most unlikely places and at the oddest moments. In times of stress there was comfort in eating: to certain types of people a full stomach represented security, and that was what Carrington was hungering for at the moment.

Twelve minutes to go.

Each globe which was collapsed freed more men for work on the number remaining, and taking into account the assistance being given by stewards from the adjoining rings Three and Five, the Captain had about decided that blast-off would be on time. Not that a few minutes delay would matter greatly—that could be made up by an hour or so's fractional increase in thrust. Only delays counted in the hours or days caused trouble.

At minus four minutes he saw the last capsule go down and the gradual cessation of activity in the human gnat-swarm around Four. He said, "Mr. Carrington, stand by."

The voices of the Chief Stewards began coming in: Ring Three reporting all secure and ready for thrust, closely followed by Two, One and Five. As expected Four was last, but still on time.

"Stand by all," said Woodhill. "Thrust in one minute."

As always the first thirty seconds dragged and the second galloped, then precisely on the zero second the pressure began. One quarter-G wasn't much, but after weeks of complete weightlessness it felt uncomfortable and vaguely frightening. Woodhill forced the thudding of his heart, the constricted feeling in his chest and the other subjective impressions out of his mind and concentrated on the scene outside.

So far nothing had pulled loose. All five rings showed a disquieting tendency to warp and buckle where they joined the towing cables, but this was expected and allowed for. The Captain regarded the imposing sight of an inter-planetary passenger vessel under power, and told himself sardonically that it resembled nothing so much as a space-going spider's web hung with mummified flies . . .

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The wall-speaker clicked, emitted heavy breathing sounds and climaxed with a voice saying sheepishly. "I fell off . . ."

"Cut!" said Woodhill sharply into the reactor room mike. Their acceleration dropped rapidly to nothing as Carrington shot in the pile's damping rods, and the couch upholstery bounced Woodhill gently against his straps. He returned to the general circuit then and said impatiently, "Who fell off, and where?"

"Melville, sir," replied the voice apologetically. "From Three, sir. We were helping out at Four and when I got back there wasn't much time so I just held on with my hands. That's no trouble under a quarter-G. But when I decided to hook on properly and let go with one hand to do it, the other hand slipped—"

"How long between the time you fell off and our cutting thrust?" Woodhill interrupted.

"Uh, about five seconds, sir."

The Captain did some quick calculations and decided that Melville was dropping behind at a velocity of approximately thirty-five to forty feet per second. Woodhill relaxed; it could have been much worse than that.

"Open your suit motor to full thrust," the Captain directed. "You should be able to check the fallaway and get back in about fifteen minutes. All right?"

"I'm sorry, sir," said Melville again, "my fuel is gone and there wasn't time to fit a replacement tank, either."

Hot, scathing words rose in Woodhill's throat but got no further than the tip of his tongue. This was, after all, as much his own fault as that of the Steward. If he had not been so insistent on blasting off dead on time then people like Melville would not take risks to avoid the Captain's displeasure. Woodhill cleared his throat angrily and said, "Chief Steward on Five, come in please . . ." and began explaining the situation.

"I overheard everything, sir," the Chief broke in. "I take it you want me to snag him as he goes past?"

"That's it," said Woodhill. "And hook him on to your own section rather than returning him to Three—that way we'll save a few minutes."

The Captain watched the tiny figure of Haines, the very experienced

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senior Steward of Ring Five, swoop down to meet the receding form of Melville, and trailing a line of fog from his compressed air motor. He saw the two men come together and, with the velocity of two bodies to check now, a sudden intensification of the motor's vapour trail. They continued to recede, shrinking to a fuzzy point of light which was just barely visible. Then all at once, like a new comet swinging into the Solar System and dragging its tail behind it, they were coming back.

III

During the fallaway and return the Captain had been thinking of other things: chiefly of the springiness of his towing cables. When they had cut acceleration suddenly the tension of the cables would have thrown the engine unit and the rings towards one another. It was a slow, gentle process, of course, but already Woodhill felt that Ring One was crowding uncomfortably close behind him. And into a structure fabricated entirely of plastic—and because of this metal-free construction, guaranteed free of the mutant-producing secondary radiation—there was drifting a large, all-metal Engine unit.

He couldn't check the drift with a surge of power because Haines and Melville were almost certainly in line with the exhaust flare, and neither could he apply thrust at right angles without snarling the cables and probably pulling the whole tow inside out. Woodhill was becoming really anxious by the time Haines reported everything hooked on and secure.

"Nice work," the Captain acknowledged, and as Haines signed off he turned to the reactor room mike. "Take us away, Carrington. But gently, we don't want to jerk anything else loose . . . . !"

There were no other mishaps, however. The Captain, as was customary, took the first watch while the others read, studied, gossiped or just moved about the ship getting used to the sensation of weight again. Watching them, Woodhill thought how fragile and feeble and awkward they looked even under a mere one-quarter G. Weight made a man look and feel his age.

The first period of acceleration came to an end and again all weight disappeared. Stewards-on-watch hastily wakened the others who were

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not and the frantic scramble to waken, feed and put to sleep again their charges began, all within the allotted four hours. Food, water and reassurance moved continuously between the storage globes and the passenger capsules.

Sometimes a passenger would be too much for a Steward to deal with and the Captain would be called in, and in turn he might have to send Gallagher. These troublesome passengers were usually the nervous, over-imaginative type who would later get a terriffic kick out of the voyage, Woodhill knew. Then, after four hours of what seemed like utter chaos, everyone who should be asleep was asleep, the Watch were in position and the second period of acceleration began.

Sister Gallagher was looking thinner and more tired, the Captain noted: like a nun who has been on a long and rigorous fast. He stood her watch with the excuse that he had some bookwork to do anyway.

The end of the second and succeeding periods of thrust differed only in minor details. The small, routine crises were solved by Stewards on the spot without the Captain being asked or even informed about them. But at the conclusion of the eighth period of acceleration the vessel had built up to the velocity required to take them to Mars in the scheduled time of forty-three days. For the next four weeks, until deceleration of the same force and duration was applied to brake them into an orbit around Mars, weightless conditions would prevail.

Some passengers would like that and some would not—at first.

"Good Night, ladies and gentlemen, this is the Captain . . ."

The whole aspect of the vessel had changed. All the passenger capsules were inflated now, together with the four outsize globes which would be used as Steward's living and recreational quarters and the big, cigar-shaped envelope to house the air purification and recirculation machinery. All were still firmly anchored to their rings, but the layers of thin piping which formed the towing-ring structure were now practically invisible, hidden like the string inside a rope of outsize pearls. Very soon there would be another change, one for which the more nervous types of passenger should be prepared.

" . . . In a few minutes time you will see members of the crew dismantling the rings to which your living capsules have been attached,"

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said Captain Woodhill after a pause timed to gain him the maximum attention from his listeners, "and if you look out at this ring structure you will see that it is composed of several thicknesses of piping clamped together and overlapped for strength. Until deceleration begins four weeks from now this piping will have another purpose, that of bringing you air from the re-purification plant.

"There is, of course," he went on, "a tanked air supply in each of the capsules. But the air we will pipe to you will be much fresher and more pleasant than the tanked stuff, and as well it will allow us to gradually reduce the pressure inside your living quarters so that in the event of a meteor puncture the pressure-drop will be less sudden and you will have lots of time to get into a suit . . ."

Woodhill wanted to stress the rule about always sleeping inside a spacesuit at that point. It was very easy to fall asleep in weightless conditions, and a man or woman waking to the ghastly realisation that his or her air was rushing away into space was almost certainly a goner—their brains might react quick enough but not their sleep-drugged and half-conscious bodies. It was a strict rule, therefore, that everyone slept inside a spacesuit with only the faceplate open. But he decided to wait a little while: the passengers were too newly awakened to be tired just yet, and it was bad policy to start scaring them with the meteor-puncture bogey so soon.

". . . Inside your quarters," the Captain continued pleasantly, "you will find thin plastic sheeting in various shapes and colours. These can be used to divide up your globes into compartments, for purposes of privacy or for cutting out unwanted light when you want to sleep. The Stewards will advise you on how to use these, but when you get the hang of them I expect everyone will have his own ideas for interior decoration.

"That is all for the moment," Woodhill ended, "I hope you all settle down quickly and comfortably, and that you have an enjoyable trip. Good Night."

While he had been speaking the breakdown of Ring One had already begun. The thick, double piping it contained was disconnected, straightened and reconnected into a long, thin stem which was manoeuvured carefully into the centre of the hollow cone formed by the four remaining rings. Three men towing the air-plant container arrived and

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attached the big cigar shape to the end of the stem nearest the Captain, then more men flew out along it to fit couplings at six-yard intervals. The other rings were beginning to break by now and thinner sections of double piping were being brought to the main stem and coupled up. Couplings and piping both were numbered and colour-coded for quick assembly, and soon the stem had sprouted a small forest of subsidiary air pipes, so much so that it resembled a denuded pine tree. Stewards of the technical section moved along the stem and branches checking the joins and laying communications cable.

During all this activity the passenger globes had been left to drift at the end of long safety lines which were connected now to one of the main towing cables. As the rings to which they had been attached dissolved from around them they began to break their circular formation. One or two of them floated right away from the main group and the Steward-on-Watch had to go out to calm the agitated passengers concerned by pointing reassuringly to the safety line. When they refused to be thus reassured he got behind them and, using his compressed air motor, gave their globes a gentle push back in the direction of the main group.

"Carrington, Hutton," said the Captain suddenly. "Get the Weed out and throw it across to them, they're about ready for it now."

The Weed was a specialised strain of Martian plant life which would synthesise a truly amazing quantity of oxygen from a roughly equal amount of carbon dioxide. It grew fast and flourished so long as the CO_2 kept coming, but tended to die of self-strangulation in its own oxygen if the supply diminished. Woodhill watched the two engineers climb into suits and take a container of frozen Weed into the airlock for tossing out. The men working around the stem would snag it as it drifted past.

The four Steward's globes had been attached to the stem, with the food and water storage tanks beside them for handiness in serving meals. One by one the passenger globes were brought in and attached to the pipes which sprouted from the main air artery, and gradually the vessel took on the form so beloved by the travel poster illustrators.

Captain Woodhill had watched this metamorphosis take place many

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times. First the overloaded spider-web which was the towing cone, then the transition period when the inflated capsules hung like five straggly ropes of pearls, and then this. It was beautiful and it possessed a random symmetry that was indescribable, the Captain thought as he looked out at his command which now hung like a bunch of silvery grapes against the stars.

Things went smoothly for several watches after that. The passengers settled down nicely, and some of them began asking the Stewards for instruction in short-range suit navigation so that they could visit nodding acquaintances—nodding and waving and sticking the tongue out were about the only methods of communication between the globes at the beginning of a voyage—a few yards away, which was a very promising sign indeed. Then a small spot of trouble developed.

At least, Woodhill thought it small. Gallagher had other ideas.

". . . I told her how it was affecting the other passengers around her," the Sister expostulated, after giving the facts of the case in a slightly quieter tone. "And the Stewards, too. That new man is useless for anything every time he comes within fifty feet of her globe. I told her how many married men we have aboard, and explained that when she attracts more than her fair share of Steward attention it means that the other passengers get less, which creates bad feeling and eventually ruins a trip for everyone."

Gallagher took a deep breath, then plunged ahead.

"She said she understood all that and she didn't want to cause trouble, but that where she came from there was very little sun. It's glorious out here, she says, and she's sun-starved. I told her she could sunbathe all she wanted but to use the screens inside her globe. She said she would, but didn't.

"She's nothing but a hussy! A shameless exhibitionist who—"

The Captain held a hand up to quell the tirade, then said, "Most of the men and Stewards are mature people, so that I doubt if there would be any trouble. But there's still a very small chance that . . ." He paused thoughtfully, then shook his head. "I suppose we might as well crack down at the beginning. Do you want me to talk to her?"

Sister Gallagher shook her head. "She would only say 'yes' to everything and carry on as before . . ."

"Well, then?"

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"What is our position at the moment, sir?" said Gallagher, apparently going off at a tangent.

Woodhill looked at her sharply. "The present position of Mars makes it necessary for us to approach the Sun almost to within the orbit of Venus before curving outwards again. Our nearest approach will be in eighteen hours—which reminds me, I'll have to issue warnings about over-exposure to the increased ultra-violet . . ." He stopped, coughed, then added, "I won't have it, Sister. There would be the danger of a serious heat-stroke."

"No, sir," Gallagher said firmly. "I promise I won't let it go that far. One of the Stewards will fix her receiver for me so she won't hear your exposure warning, that's all. You won't even know about it, officially."

Woodhill sighed. "All right," he agreed, "but tell me how it goes."

Shortly afterwards the Captain began the long job of making the rounds of his ship, and while inspecting the enormous mass of technical equipment and examining the Stewards in their fitness to perform their duties he managed to work in visits to passengers. His aim in this was to encourage as many of them as possible to leave their capsules and learn the rudiments of spacesuit manoeuvring so that travel around and visiting within the ship would be possible for them. The interior of a twenty-foot sphere—even one that was a semi-transparent bubble hanging in interplanetary space—could become very boring to the inhabitant, especially when the weight allowance gave them only two pounds of reading material.

The Captain would glide up to the passenger sphere, radio for permission to enter, then wriggle through the tiny airlock. Once inside he would exchange the greeting which had become traditional in a media where there was no day—the passenger a little awkwardly and himself with the ease of long usage. He would chat for a while before leaving, but the passenger would have very little to say on that first encounter with him.

He could see the reason for that in their eyes, in the looks which were a nice mixture of awe and pure inquisitiveness. Awe at this frail, incredibly wasted and old-looking man who had not set foot on a planet or breathed other than repurified air for several decades, who would die helplessly of a ruptured heart and burst arteries within

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minutes of being exposed to an Earth-normal gravity, yet whose wasted muscles possessed a degree of control and co-ordination in weightless conditions which had to be seen to be believed. And there was, too, the fact that in the absence of gravity the human body lived longer, much longer.

The curiosity, of course, was regarding the reason which had brought or driven him to space in the first place.

In the past he had sometimes satisfied their curiosity, telling them of the car accident which had killed his wife and youngest son. And how the other two married children had blamed him for it and made his life a misery. But the passenger concerned invariably thought that the Captain was looking for sympathy, which he wasn't, and Woodhill had stopped letting his silvery locks down in this fashion.

Sometimes he would look out at his command, at the weird complex of globes and plumbing and human life which was in his charge, and muse wryly, *And they accused me of being too old to handle a car . . !*

His tour of inspection was nearly completed when the Captain began to notice a new word appearing in the lighthearted, slangy conversation of his Stewards. Curious, he asked Sister about it.

"What or who is Minnehaha?"

"Minnehaha, Laughing Water . . ." began Gallagher, then: "Oh, hang it, I forget how it goes now. It's a poem called "Hiawatha," about Indians . . ."

Suddenly it clicked. Woodhill said, "You mean our one-woman girly show?"

Gallagher nodded. "She'll stay decently covered up from now on if I know anything. I'm attending her regularly to spread that anti-UV goo on her. It's very good stuff even if I do slap it on a bit ungently." She chuckled softly and added, "A lovely tomato colour, she is."

In reply the Captain made a non-committal sound designed to give the impression that while he was grateful that the problem was disposed of he did not altogether approve of the manner of its solution. Gallagher left, not seeming to worry too much whether the Captain approved of her methods or not.

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IV

The half-way point in the trip arrived and passed, marked by gatherings of the passengers and Stewards not on duty in the four big spheres used by the crew as living quarters. The interiors of the globes resembled a badly overcrowded goldfish bowl, the Captain thought, but the strangeness of being able to meet and talk to a whole lot of people at once—something the passengers had been unable to do since leaving Earth—more than compensated them for any discomfort they suffered from the frequent kicks and collisions. A game of follow-the-leader around and through the ship, performed by the passengers who had been taking instruction in space-suit handling, rounded off the occasion. This was an hilarious success from the spectators' point of view, but what the Steward-instructors thought of the debacle was not mentioned aloud—especially to those passengers who had got themselves inextricably tangled up in the rigging.

So that the 'Bunch of Grapes' as Gallagher called them would be under constant supervision by the officer on watch in the control room, the engine unit had been rotated so that its bows pointed back towards the assemblage. Rearview TV could have been used instead and without moving the ship, but this was subject to interference from the Sun and was not dependable. Hurtling silently tail-first now, and still connected loosely to the rest of the ship by the four towing cables, the engine unit maintained a constant radar sweep astern.

And got a blip where no blip had a right to be.

". . . It seems to be a small, dense body," Hutton, who was on watch, reported, "and not another bunch of grapes. But the course and speed rule out its being a meteor or small asteroid with an eccentric orbit. If I hadn't heard that the last one had dropped into the South Atlantic I'd say somebody was testing an anti-gravity ship . . ."

Looking at the trace which was drifting slowly across the screen, Woodhill was inclined to agree with Hutton. Those anti-G ships, man-killers though they were, could be built much more cheaply than the reaction-propelled type, so that it was quite possible that another had been constructed since the last failure. And if it was 'way out here

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then it had been the most successful yet.

The thought made him vaguely uneasy. On Earth most people believed that the anti-G vessels would replace the ships currently in use inside the next twenty years or so. Requiring very little metal in their construction they could be designed to avoid the secondary radiation hazard, and they could accomplish in a few days the same trip which it was taking Woodhill's ship six weeks to do. They would simply reverse the gravitic attraction of the home planet and fall rapidly away from Earth, at a contantly increasing velocity, until they began to fall towards the planet which was their destination.

But antigravity was a cranky business at the moment, and its ships were just as prone to fall down as up. When people wanted to travel safely in space they used grapes, the Captain told himself smugly; grapes got you there.

"Is it in telescopic range?" Woodhill asked suddenly. He had never seen one of the new ships.

Hutton's face twisted itself into the pained, slightly harrassed expression he registered when a simple question demanded a complicated answer. He said, "We're overhauling it fast, but its lateral velocity with respect to us is so great that it will be out of sight to starboard by the time we draw level. I'd say its nearest point of approach will be in about twelve minutes time, but you'll have to have very good eyes to see details."

"We'll try anyway," said Woodhill. He had the keenest pair of eyes on the ship.

While Hutton aligned the telescope with the radar bearing the Captain tried to raise the other ship on the radio. He was still trying when there was a surprised grunt from the engineer. He hurried back to the telescope.

There was no atmospheric or other forms of distortion in space so that very high magnification could be used. Looking at the tiny, glittering image centered in the instrument's field the Captain thought that a blind man could see this thing, whatever it was. He looked several times, moving his eyes to the side several times to rest them, then moved across to the intercom.

"Carrington, come up here a minute."

His hands had begun to shake.

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The First Engineer arrived and stared for several minutes through the eye-piece. Hutton had another look, then Carrington again. Woodhill said, "Well?"

"Th-the radar indicates a small body, about half the mass of the engine unit here," Hutton stammered. "It's very bright, I . . . I don't know . . ."

"Carrington?"

The engineer hesitated, then said briskly, "Course and velocity are wrong for a body in a natural orbit around the Sun. I seem to see a fine fuzz around the image that could be towing booms or radio antennae, but my eyes weren't good enough to resolve it and it might have been my mind playing tricks with my vision because I know that it can't be a natural body.

"The albedo is very high. It must be a nearly perfect reflector, like ice or glass . . ."

The Captain lost track of what Carrington was saying after that. He was wondering what it would be like to lose his command, to be banished to some lonely observation satellite where he would die or go mad talking to himself. But a job like that might be too much to hope for. It required an old man with an alert brain—old because those observation posts were full of metal equipment and the secondary radiation did not bother the aged. More likely he would be sent to that dome he had heard about on the Moon with the other 'retired' Captains and Engineers whose minds had begun to go or who had seen things.

He was thinking about Patterson.

It would be so easy to side-step the whole problem, too. Just make a brief entry in the log regarding the sighting of a peculiar object and leave it at that. Carrington and Hutton would back him up to that extent, he knew, and the authorities could not query something which had been sighted both on radar and by telescope by three seperate people.

But the Captain's eyes were very good; he had seen much more than the two engineers and he considered it his duty to report it.

And if certain people drew the wrong conclusions from his report . . . Well, he had always liked Patterson and they would be company for each other on the Moon.

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"Hutton!" he said abruptly. "Leave the telescope and return to your panel, you're supposed to be on watch anyway. I want you to send this . . ." He began to write quickly on a message pad, crumpled the first two attempts and tossed them away as being improperly worded, then handed Hutton the third. "Get that off at once and repeat until acknowledged."

The Second Engineer began to scan the message. He looked suddenly frightened. "But . . . but I didn't see anything like this! There was just a bright spot in the telescope and a blip on the . . . I didn't see *anything* . . . !"

You stupid, frightened old man! Thought Woodhill furiously, momentarily forgetting that he was both old and frightened himself. Aloud he said, "You will not, either of you, be required to lend verbal support to my hallucinations, if that is what they prove to be. Now get the message off."

Hutton flushed at the anger in the Captain's voice and Carrington, who had been reading over the Second's shoulder, gave Woodhill a long, thoughtful look. Finally he said, "If it should be what you think it is . . ."

Without completing the sentence Carrington kicked his hulking body back in the direction of the reactor room.

Because of its intense brightness the object remained visible for several minutes longer than expected, but eventually it was gone and the Captain returned to watching it on the radar screen. Behind him the Second Engineer was repeating the message as ordered, but in tones which disassociated himself from the contents. Woodhill had tried to make the message sound as concise, serious and sane as possible. But he could not help remembering that the copy of Patterson's report from Ganymede had sounded that way, too, and they were replacing Patterson.

Now that it was gone from view Woodhill found himself wondering what exactly it was that he had seen. It had not been anything positive, he knew; he was sure only that the object resembled none of the current types of space-vessel, either in use or of the experimental anti-G type. Which left only one other possibility. And if the thing was of extra-terrestrial origin and a product of intelligence then people

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should be told about it, even if it was only a derelict falling endlessly through space whose course happened to intersect the Solar System . . .

A sudden, violent pattern of interference swept across the radar screen, halting the Captain's thoughts dead in their tracks. As he watched, the interference died but did not disappear entirely; the blip kept swelling and shrinking and wobbling all over the screen. He stepped up the sweep rate in an effort to increase definition, but without effect. Woodhill began to suspect that the object itself might be producing the interference, and if that was the case . . .

The Captain returned quickly to the telescope, and was not too surprised to find that the object was back in sight. He reached for the public address mike.

"Good Night, ladies and gentlemen, this is the Captain," he said, and began lying plausibly. "During every voyage we try to spring a little surprise item which usually takes the form of an emergency drill, and this is it. Whether you are awake, asleep or whatever, I want every one of you into spacesuits within the next ten minutes. When this is done you must stay inside your globes and wait further instructions . . ."

Despite his efforts to retain a pleasant, half-joking tone his voice became suddenly harsh as he went on, "This applies also to all Stewards and Chief Stewards, who will immediately go to the assistance of the passengers in their charge who may not be able to manage their suits alone. You have ten minutes, *move!*"

To the suddenly bewildered Hutton he snapped, "That applies to us, too. Tell Carrington."

Five minutes later, encased in his suit but helmetless, Woodhill returned to the telescope. The object seemed to have gone. He searched carefully, sweeping the instrument back and forth in infinitesimal arcs so as to be certain of not missing it. The radar image was still too unsteady to give him a helpful bearing, and he had to break off several times to answer Chief Stewards wanting to know what was going on. He told them what he thought was going on and sent them to check again on the safety of their passengers, then returned to the 'scope.

Suddenly he saw it pop into the field of view, appearing so big and close because of the high magnification that it made him gasp. He

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turned quickly and took the couch beside Hutton.

"Rear vision screens, quickly!"

Hutton gave a startled yelp as the alien spaceship flickered onto his screen. It *was* close, Woodhill thought fearfully, less then a mile away and looking as though it was bent on ramming them up the exhaust pipe. Head on like this it was hard to see details, but the hull seemed to be a semi-transparent glass-like substance from which grew a fine, sparse fuzz of thin spikes, and at more infrequent intervals around the hull tripods of thicker piping surmounted by what looked like bowl reflectors. While his hands shook and the cold sweat began to trickle down his back a cooler, more objective part of Woodhill's mind noted that the alien's vessel seemed to be non-metallic, which could mean that they feared radiation as much as the humans did, and that those reflectors looked remarkably like pictures he had seen of the gravity repulsion bowls used on anti-G ships . . .

A harsh babble erupted from the speaker grill as everyone in the ship apparently started talking at once. The Captain yelled, "*Quiet!* I can see it, we can all see it! Stop tying up this channel telling us about it, and keep it clear for orders from myself. Understood? No incoming messages unless there's a grave emergency—"

"It's going to hit!" shouted Hutton in terror.

"No!" said Woodhill sharply. "Read the time and distance graduations on your screen. It'll be close but it won't hit us—"

"*Look . . !*"

Two of the six reflector bowls which encircled the waist of the alien ship had begun to glow red, and to centre themselves on the engine unit. Woodhill felt a shudder run through the whole ship and saw a blur of motion beside him as Hutton's hand darted towards the emergency thrust button. "Wait!" he called, but too late.

It took all of three seconds to contact Carrington and countermand Hutton's signal, and by that time the engine unit was moving at nearly fifty feet per second, straight towards the centre of the passenger globes . . .

"Did you see that?" cried Hutton excitedly. "I nearly got him with our trail flare! That shook *him*, I bet—"

"Shut up!" said Woodhill, then on the crew circuit: "Attention! We have been obliged to apply thrust for three seconds to avoid collision

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with the alien . . ." He shot a withering glance at Hutton. ". . . and we are falling back on the passenger assembly. We can't apply thrust at right angles to avoid you because there isn't time for the gyros to swing the ship. So listen carefully, here is what you must do . . ."

The air-plant installation was to be disconnected from the main stem, also the food and water storage globes and the big crew spheres, and were to be held only by their long safety lines. Every available Steward was to go along the stem disconnecting the rigid air-supply piping which held the passenger globes to it, and push them out to the limits of their safety lines also. There would be a lot of air lost but that could not be helped, and at the earliest opportunity the air purifying installation must be stuffed with enough passengers to keep it from dying from lack of CO_2.

If the engine unit couldn't take evasive action then the globes would have to disperse to avoid *it* . . .

A strangled sound from Hutton made the Captain look round quickly. The alien vessel had drawn level with them and was pulling slowly ahead, four of its bowl reflectors glowing red and swinging about in apparently aimless fashion. Maybe that three-second dose of radiation from their tail flare *had* done some damage, the Captain thought. He was surprised how small the alien ship looked, how fragile the projecting tripods seemed. At this close range he could see that the spikes covering its hull had their points capped by a tiny ball. It was an effort to drag his attention away and back to his passenger globes.

V

It was a fantastic, awe-inspiring sight. The globes were opening out, bursting away from what would have been the point of collision and trailing the severed air-lines behind them. Because of safety valves inside the spheres they remained inflated, but the residual air in the lines together with that in the disconnected main stem burst out as an irregular, sparkling mist which sent ghostly pseudopods spurting out to the hurrying globes and beyond. The effect was of some weird and monstrous flower opening up to engulf them.

The Captain knew that it did not represent a threat, but the aliens had no such comforting knowledge.

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He saw the glittering, transparent ship making frantic efforts to sheer off. But the passenger globes were still spreading out; they had not reached the limits of their safety lines yet. The reflector bowls around the ship glowed red and whipped from side to side, and a sudden, violent wind seemed to shake the cluster of globes directly ahead of it. Yet even with the passenger spheres still spreading out Woodhill thought that it might have avoided collision, if it had not been for the towing cables.

The increased slack on the towing cables caused by the engine unit falling back on its tow had sent them snaking and coiling all over the place, and those cables were of metallic hardness and strength. The alien ship blundered suddenly into one which tore off three of the tripod and bowl assemblies together with half a dozen of the shorter spikes. From the stumps a thick, whitish fluid bubbled and hardened and the ship spun slowly end over end. It blundered into a passenger globe, ripping the thin plastic wall to shreds with its spikes. Air spurted out, hazing the details, but the Captain saw the ruptured sphere held to the alien's hull momentarily before drifting off. Another collision and another globe burst in a shining cloud of air, but this one was dragged behind the ship by its safety line which had become entangled in one of the tripods.

Still spinning the alien blundered into another globe's safety line, then another and another until it was inextricably tangled up in them. Reflector bowls, the only two left in operable condition, apparently, whipped about furiously for several seconds then became still. The ship came to a halt, with four inflated globes and the one collapsed and tragic remnant which it had destroyed trailing from it by their safety lines.

"Gyros," said the Captain urgently. "And thrust. Three and a half seconds at one-quarter G. Get us back here!"

But it took many agonisingly slow minutes for the engine unit's gyros to make the ship swap ends, and more for its carefully timed period of thrust to bring it back into the vicinity of the globes. Woodhill's quick thinking in ordering the globes to scatter had kept them from colliding or being contaminated with the engine unit's still radioactive tail, but something which was much worse had happened as a

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result of it. Listening to the babble over the general and Steward's circuits he felt sick.

This was too much for an old man to handle, he told himself wretchedly. His control of the present situation was nil, his effectiveness a zero quantity.

The globes had spread out to the limits of their inter-connected safety lines, been jerked to a halt and were already beginning to drift slowly together again. Sense and purpose had replaced the panic in the orders being shouted over the suit radios, and the Stewards began to operate as the highly trained and co-ordinated body that they were. Certain jobs just had to be done, and the fact that an alien spaceship was in their midst capable of negating all their efforts in a matter of seconds was not allowed to make any difference. If there was to be any safety at all it lay in flight, but before there could be any movement at all the towing rings had to be reformed.

The only wild conversation in evidence now, the Captain noted, was that which referred to the passengers whose globes were entangled with the alien ship and bobbed within a few yards of it. The people inside those globes were visibly alive but definitely not safe—there was movement, too, from the ruptured globe, proving that its occupant had got into his suit in time and had survived the collision—and he would have to be evacuated at once before the alien decided to do something else.

". . . Go to that globe nearest to the alien ship's stern first," a voice, which the Captain recognised as belonging to Chief Steward Haines, was urging, "and bring the passenger out. Talk him into it if you can, slug him if necessary, but work fast. And be careful of that ship . . ."

"I will," came the reply in a voice thick with rage. "But if I had my way I'd go into that ship and tear every murdering, lousy alien apart."

Woodhill was a tiny figure in a spacesuit dart towards the alien ship and approach to within fifty yards. Then it happened. A thin, white line, perhaps ten feet long, detached itself from the alien ship and shot like an arrow towards the Stewards. It hit, and splashed.

There was a panicky cry from the speaker grill:

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"They've hit me with something! I . . . I can't *move* . . . !"

"Thompson! Melville!" Haines voice rapped out. "Go after him. And take evasive action. Plenty of it, unless you want whatever that was to happen to you . . ."

Two more figures moved, ducking and weaving madly, towards the alien—and were speared by arrows of white which splashed against their suits and froze. Other men followed and met the same fate despite their ducking, feinting and wild acrobatics. The alien seemed to know exactly what they were going to do and how exactly they intended to dodge before they did it: reaction preceded action rather than following it. Seeing with what calm deliberation and lack of fuss the men were hit, and remembering back to the time when the panicky Hutton had reached for the emergency thrust button, *and the alien ship had used the time-lag between the activation of the control and the seconds-later commencement of thrust to duck away from their tail flare,* Woodhill came to a very frightening conclusion.

The aliens had telepathy.

When the eighth man had been hit the Captain decided that it was high time he resumed his responsibilities.

"Haines! The Captain here. Call off all attempts to rescue those passengers, at least for the present. And those men who have copped it—wait until they drift well past the alien before picking them up, and tell the men bringing them in to make a wide circle around that ship. I'd say that the range of that white stuff is from fifty to seventy yards, so tell them to act accordingly. And where is Sister Gallagher?"

"Yes, sir," said Haines, sounding relieved at being able to shift the load, and: "I think Sister is in SG2."

At the back of his mind the Captain had been very worried over the safety of Gallagher. It was a relief for him to know that she was in one of the steward's globes. He said, "Very well, take the casualties there. And tell Sister I'd like a report on them as quickly as possible."

The Captain went to the direct vision port and focussed a pair of binoculars on the alien ship. He examined the shining, glass-like structure closely, trying to draw some solid, accurate conclusions for the basis of future actions. He was trying to look and think ahead—and succeeding. In the process he was frightening himself half to death.

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He was running out of time, *fast.*

"Gallagher here," said the 'speaker grill suddenly. "I've looked at those men, sir. The white substance was shot at them from those short spikes around the alien hull—they shoot out a jet of it which spreads and hardens on contact, the men say. The outside of their suits is covered with a thin, hard shell which makes it impossible to remove them. The stuff is so hard that nothing we have here will make a mark on it, though I've no doubt the heavy cutting tools in the machine shop . . ." She left the sentence dangling.

That was out, the Captain thought grimly, except as a last extremity. Bringing a young man into the repair shop of the all-metal engine unit, to undergo perhaps several hours of secondary radiation while he was being cut free . . .

But Gallagher was speaking again.

"With an impenetrable shell covering most of the joins in their suits we'll have our work cut out for us simply keeping the men supplied with air—and even that, I might add, would be impossible if we go to towing stations. And naturally, we can't get food or water to them, so there isn't much time to come up with the answer."

You don't know the half of it, thought Woodhill.

The alien ship was small, and through its transparent hull he could see two dark, blurred figures whose size and mass was at least that of a human, so that Woodhill estimated their food requirements to be roughly similar as regards volume. Which meant, considering the small storage space available within it, that the vessel was simply a scout for some larger ship. Scoutships could be expected to carry radios, which in turn meant that the mother ship must now be rushing to the aid of its attacked daughter. When it arrived it could be expected to be in a hurry and mad and prone to jump to wrong conclusions.

So that taking up towing formation—and in the process sacrificing the lives of the men frozen inside their spacesuits—and haring out of here at their snail-like quarter-G would be useless as a method of escaping a ship whose scouts had the gravity drive. Whatever was going to happen would occur within a few hours, or perhaps minutes, from now, and the answer would have to be ready then.

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It had to be the right answer, too. Anything else and at very least the passengers and crew of his command would die, and at most he might involve Earth in an interstellar war which would be the end of his race. He had to be very, very careful. Wrong thinking now could cause . . .

His mind became a churning mass of horrible effects which could arise from simple, innocent causes. Woodhill forced them into the background and spoke harshly:

"Haines, we've got to attack that alien ship! I want every Steward and as many passengers as will volunteer. Start getting things organised right away. I've something in the engine unit here which should help, but more about that later."

"Yes, *sir!*" said Haines, angrily enthusiastic. Other comments came through the general and crew circuits and were merged into a low, animal sound of rage and approval. Woodhill was glad the attack had popular support: it was imperative for the men to be in this frame of mind if his plan was to succeed—for the time being, that was.

"I'll call you back," said the Captain, and broke contact.

VI

The plan he had in mind was a desperate gamble, its success depending on the correctness of dozens of assumptions he had made from watching the alien ship and the recent activity around it, and if any single one of them proved wrong then his plan was a failure. Take the telepathy, for instance. If the aliens could and were reading his mind at the moment then he might just as well give up. But he was staking everything on the hope that the background noise from a large number of strange minds was confusing the aliens, that and the fact that there were strong indications that the alien telepathy was limited in range.

Because the white stuff sent against the men could have been used effectively over much greater distances than fifty yards, but it had not been used beyond that range. Which could mean that it was only within that distance that the aliens could begin reading human minds well enough to know how they were going to duck.

And the white stuff itself. Close examination through the binoculars

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had shown that there was a small nozzle mounted on a universal pivot fitted to the end of every 'spike.' The white substance hardened quickly and became transparent. Was it too much to suppose that the free-swinging nozzle arrangement was a meteor protection device, that its purpose was to replace and seal off any portion of the ship's hull which might be damaged. The fact that the aliens had turned them outwards and used them as a weapon only proved that the humans did not hold a monopoly on adaptiveness.

But the most promising and hopeful fact of all was that nowhere on the whole surface of the alien hull or among the mechanisms visible inside it was there a trace of an airlock.

However, there was no use going over all this in his mind again, the Captain told himself firmly. It was time to act.

"Carrington, listen in on this, then come to the control-room, please," he said into the intercom. Then over the Steward's circuit; "Come in Haines. Now listen carefully. In a few minutes time I'll be throwing you some stuff in three-foot containers. These are plastic, so there is no radiaton hazard, but they have to be handled gently. Contents are a new type of acid which is being carried in the engine unit because of the danger of it getting loose in the cargo sphere. To use them you'll have to build up speed and direction with your suit motors towards the alien—dive-bomb them, in other words. Make sure that the nozzle end hits first, it's very fragile and should break on contact. We'll work out the plan of attack later, but I want that ship clobbered . . ."

He could hear the excited, angry voices making a harsh rasp as they merged. Woodhill knew he was supplying a need, a magic wand which would open up the alien ship. They were too worked up to ask questions—such as what if the acid did not penetrate, or how come such a powerful acid was being stored in a plastic container . . .

". . . And Haines, please ask Sister Gallagher to come to the engine unit immediately."

When Carrington arrived he said, "I want you and Hutton here to throw those containers in D compartment across to SG2. But I want them painted first. Spray them a nice orange colour, or some other bright, dangerous-looking shade. The vacuum will dry them before they arrive. I don't want anyone to know that they are empty air tanks."

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The two engineers began moving the containers to the airlock, taking turns at rotating them under the sprayer. As they were finishing, Gallagher came in.

"Sister," he said briskly, "I want to observe the coming operation from close range and need a covering party—an *unarmed* covering party. You've been with Haines and seen the passengers who have volunteered for the attack. I want the names of five or six of them who are the most nervous, impressionable and over-imaginative. You've met them all during the voyage and should know—"

"But that's *stupid!* Why not take Haines and a couple of the senior Stewards . . . ?" She broke off, then ended shrilly, "Oh, all right, all right! You needn't look at me like that. If that's the way you want to do it I can give you the names. But I can't . . ."

Sister was badly frazzled, the Captain thought. Yet if he told her everything, he knew that she would feel much worse. Woodhill finished noting down the names and said, "I'm leaving now. You three stay here and on no account mention anything I have said recently to the crew or passengers, or anything you may deduce from what I have said. Don't even talk about it among yourselves. If possible don't even think about it. You don't know who might be listening . . ."

The Captain knew that he left them firmly convinced that he had well and truly flipped his lid, but he was hoping that the habit of discipline would persist long enough for his plan to be carried through.

Under the Captain's direction the Stewards and volunteer passengers formed a wide globe around the alien and began to close in gingerly. Most of them carried the brightly painted cylinders which supposedly contained acid, and although they were now all within one hundred yards of the ship and all presumably thinking hard about the purpose of the cylinders, none of the white goo had been sent against them. This proved fairly conclusively, Woodhill thought, that the aliens' telepathic range was decidedly limited. He began to move towards the gap in the englobing force which had been left for the passage of himself and his covering party.

Because the party was there to give him mental rather than physical coverage, Woodhill kept up a low, nervous flow of conversation, doing his best to scare the six men around him silly. In order to

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control the attack the Captain would have to be close to the alien ship, and a mind which was radiating the plan of attack so strongly as he would have to do would stand out like a beacon to the beings inside the ship. And if they read his mind before he wanted them to, especially with this mob of humans swarming around their vessel they would almost certainly jump to the wrong conclusions again. It was quite possible that his plan might just as well have been accomplished by his coming alone and unarmed to the alien ship. But the chances were that the aliens were so jumpy that they would simply have plastered him with their sealing compound, and that would have been that. On the whole this way was probably better.

The Captain could not shield his thoughts, but he could provide for himself an obscuring cover of frightened, confused and strongly radiating minds which would swamp out the quieter, more stable signals coming from himself. That was another assumption he hoped was correct. If it was, however, it meant that his own safety and degree of concealment was in direct proportion to the amount of funk he could induce in his covering party.

That was why he talked constantly in a nervous, jerky voice about the aliens, wondering aloud what they were like, what they would do if they got to a passenger and similar disquieting subjets. He interspersed this scarifying monologue with orders to the attackers.

"Haines," he said sharply, "send in a few men twenty or thirty yards, and tell them to be ready to duck out again quick. And listen, on no account are they to release their acid bombs—"

"But that's . . . !" Haines choked back words that would have been sheerest mutiny, breathed hard into his suit mike, then protested, "Shouldn't we consider the element of surprise and hit them first time with everything . . . ?"

"Do it my way," Woodhill rasped. To the men beside him he said, ". . . And it must be pretty terrible inside those frozen-over suits. Imagine being able to see and hear your friends but never able to touch them. That's if you're lucky and your face-plate can be opened for food and drink. But suppose it wasn't and a dollop of that stuff landed on your air tank supply line. They wouldn't be able to change the tank and after a bit when the air ran out . . ."

Three figures trailing lines of fog from their compressed air motors

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darted towards the ship, and suddenly all hell broke loose. Woodhill knew what had happened—had been expecting it, as a matter of fact. With the entry of the men into telepathic range the aliens knew—or thought they knew—what the brightly painted cylinders were for. Thin lines of white speared out from practically every projector in the ship, not only towards the three men but aimed at every man in the vicinity who carried one of them. Two of the men headed towards the ship were hit and spun away, in awkward, frozen postures, to be picked up by passengers hovering outside the englobing force. The men surrounding the ship were still outside telepathic range, of course, so that their minds were not being read while they took frantic evasive action. They were able—just barely—to avoid being hit.

Almost without noticing it he found that he was within the fifty yard limit and drifting closer, yet none of the projectors had been directed at any of his party. Unarmed and radiating fear at a high and sustained rate as they were doing, the aliens disregarded them and concentrated on the targets which they *knew* were dangerous—the men carrying the 'Acid' tanks.

The rate of fire from the ship began to slacken off. Obviously the aliens were conserving their store of the sealing compound. Woodhill did not want that.

"Haines," he called quickly. "Send in some more men, from several directions at once. Just have them duck into range and out again, I want to draw their fire . . ."

The reaction this time was not nearly so spectacular, and there were no casualties.

"Everybody move in," Woodhill ordered, "but *slowly!* Get ready to use the acid tanks, but not until I give the word. Keep harrying them . . . !"

Like an enraged porcupine flinging off its quills the alien ship sprayed the englobing force with the silent white jets: it was a panic reaction. One of the Captain's covering party was hit and spun away in a stiff, unnatural posture, and the others scattered leaving Woodhill alone. Then suddenly it stopped. The attackers continued to close in, moving the bright orange cylinders into position as they came, and still there was no response. Woodhill, who had been trying to calcu-

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late just how much of the sealing compound a scoutship could afford to carry, began to feel hope.

Haines had realised what had happened, too. The Chief Steward's voice came blasting out of the phones urging, "Attack, attack now! They're out of ammo, go in and plaster them . . . !"

"Attention!" roared the Captain suddenly. "You will do no such thing! Move in close, but do not use the tanks—there's nothing in them, anyway. Now listen to me . . ."

Speaking quickly because the men were in no mood for a long, closely-reasoned sermon, the Captain recounted the series of incidents —*accidents*, he put in, was a better word—which had occurred since first contact with the alien ship, but from the viewpoint of both sides. The alien had come in too fast and too close, causing the engine unit to apply thrust rather than risk collision. The unit's tail flare spewing out in their faces must have given the aliens quite a fright, too. Then when the engine unit drifting back had caused the passenger cluster to scatter, opening and swelling outwards in a fog of escaping air to ten times its original size, the aliens must have thought that some terrible space-dwelling monster was getting ready to swallow them up.

The damage done among the passenger globes had been inflicted during their desperate efforts to escape, and the reason they had all been shaken up so badly when the red-glowing reflectors were pointed their way was because these were the ship's means of propulsion—a repulsion beam or some similar means of gravity control—and they had just happened to be in the way.

He explained what the white stuff was and the panic which must have led the aliens to using their meteor protection as a weapon. Then he had to tell them about the aliens' telepathy, which made it necessary for him to dupe his passengers and crew into thinking he intended to destroy the alien while all the time he merely wanted it rendered helpless so that he could get close enough to talk.

". . . The mother ship will be arriving any time," Woodhill continued, "and we must straighten out this misunderstanding before it gets here. That is the *only* course open to us. Escape is impossible and the only help that can be given to those men frozen into their

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suits must obviously come from the aliens themselves. Remember that there are no airlocks on the alien ship—apparently they seal themselves in and dissolve their way out, so they are bound to have the solvent for that white stuff.

"Now I want you all to move back to your quarters, and stay there until I'm finished here. But first, a few of you tow away the passenger spheres that are entangled with the ship." The Captain hesitated, then waited until a party of Stewards hurried to do his bidding. Until that moment he had been unsure whether or not the anger he had aroused had gone beyond his control.

"I've explained how the proximity of so many minds using, to them, alien thought processes confuses the beings in the alien ship," he said in conclusion. "Had this not been so, my plan of attack would not have worked. But now everyone but myself must be out of range. They must have only one mind to read; mine. There must be no more confusion, no more misunderstandings . . ."

But when he landed on the alien's hull a few seconds later and saw the two beings—they were just enough like humans to seem horrible—looking through the transparency at him, the Captain began to have doubts. The beings showed no signs of agitation as they watched him out of large soft eyes, which meant that they must have read his mind and now knew that the humans were not and never had been a threat to them. It also meant that the aliens might ignore him, coldly certain that the Captain and the rest of the humans would be eliminated as soon as the mother ship arrived.

Maybe the aliens were the type who held a grudge.

Angrily, the Captain pushed these negative thoughts out of his mind. To the beings in the ship he was an alien, with alien thought processes which—in spite of the possession of telepathy on one side—would require 'keying-in' with some common denominator. Woodhill brought out the tube of cargo marking paint he had with him and prepared to illustrate Pythagorus' Theorum.

But he was forestalled by one of the aliens who came close to him and began drawing on the inside surface of the hull. When the being had finished there was a simple, graphic picture of a solar system containing five planets, the third and fourth of which were ringed.

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Then the alien raised an arm which was jointed in the wrong places and pointed. Woodhill judged the direction as being towards Bootes. He sighed and began to feel easier, about everything.

When a stranger tells you where he lives it is a sign of trust, an indication that he wants to make friends.

Woodhill was confident now that he would be able to make his needs understood and that there would be no bloodshed when the mother ship arrived. He knew it with a certainty that made him wonder if the telepathy was—just a little—a two-way process. But all this was only the beginning: the Captain foresaw the meeting of two races and the problems which could arise, problems which *he* would have to solve. Because he would be hailed as the expert on these matters simply because he had made the first contact.

Woodhill had always longed to keep a flexible mind, to keep abreast of events and seek new experiences, and now he was getting his wish with a vengeance. His mind protested so violently at the load it would be asked to bear that he thought it must go mad. But that was only on the surface.

Underneath, the Captain was a very happy man.

NEXT MONTH —

SIGNIFICANT SCIENCE FICTION STORIES

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BIOLOGICALLY SPEAKING

A Startling New Article by KENNETH JOHNS

and

PLANET OF DEATH

An Exciting New Novelet by BRIAN W. ALDISS

—in NEW WORLDS SCIENCE FICTION

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CONFESSION IS GOOD

by ROBERT PRESSLIE

Statement: I am an android. I have learned to answer to the name of Ox.

Observation: There is a fly in the laboratory. It is resting on the barrel of a Liebig condenser. I am thinking if I should kill the fly. Griffin and Asche have not seen it yet.

Memory Recall: A fly is an insect. It feeds on putrescent matter. Its method of eating involves regurgitation. Putrescent matter contains germs. Germs are dangerous to men. Germs must at all times be excluded from the laboratory.

Problem: Should I tell Griffin and Asche or should I deal with the fly myself? The man and the woman have told me many times not to interrupt them at their work. The man has also told me to try to make myself useful about the place.

Observation: I kill the fly.

The man turns. His face is red. His eyes are wide open and staring.

"Omigod!" he says to the woman. "That big dumb Ox! Whatinhell has he done now?"

"He's smashed the condenser, Griff. And his hand is cut. It's bleeding."

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The man comes close and looks up into my face.

"That was the final stage of three months work, Ox. For three months we've been synthesising and extracting to get another batch of nutrient. Over there in the tank we have an egg which we have slowly and carefully grown from a single cell. That egg is waiting for the nutrient to make it grow and develop. That egg would have become another android in due course."

Griffin looks away from me and says to Kate, "Do you think he did it deliberately? You're the brain specialist around here—what do you think motivated his action? If I understood you correctly, you told me he couldn't do things like this, couldn't for instance have any objection to our making another android."

"He can't. Let me talk to him, Griff. And pass me the first-aid box, there's no point in letting him bleed to death."

She wipes my hand, cleans it and applies dressing.

"That was a bad thing you did, Ox." Her hands are soft, not rough like Griffin's or horny like mine.

"Tell Kate about it," she says. "Start from the beginning and speak slowly, think what you're saying."

"There was a fly. A fly feeds on putrescent matter which contains—"

Griffin talks. "Kate, I swear I'm going to snuff him if you don't cure him of that glottal stop. It's so goddam irritating. In fact, lately it's getting so everything he does is irritating. I suppose that's because he's an ever-present reminder that we failed."

"He's the first, Griff. You can't call that a failure. Carry on, Ox, tell me the rest."

"The fly was on the glass. Germs are dangerous. I killed the fly."

"Good boy, you did right. It was not a bad thing after all."

"Omigod, Kate! Stop treating him like a kid. And that baby talk drives me—"

"It's what he understands, Griff."

"It's a pity he doesn't understand he can't go around smashing up valuable equipment!"

"That sounds suspiciously like a dark hint. Are you implying that I didn't teach Ox properly?"

"Forget it, Kate. I didn't mean that at all. It's just that he's so stupid

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and clumsy. Always breaking something. He lumbers about the place like . . . like an ox."

"He didn't mean to smash the condenser. He was trying to help. And he isn't stupid. He saw the fly, knew it shouldn't be there and reasoned what to do about it."

Griffin argues. "He could have called one of us—"

"And what happened last time he did that? You bawled him out for interrupting you. Ease up a bit, Griff. Maybe he is no genius but he does fine with the rudimentary equipment he's got."

With one of those mental leaps which I cannot always follow, the man changes the subject. "It's a disgrace we should be expected to work in a dump like this on a shoestring budget. If we had decent equipment—"

"Griff—" the woman interrupts. "You're giving me a headache. You're getting to be a confirmed groaner. All the equipment in the world wouldn't produce a perfect android any quicker, and you know it. It's only a matter of getting the first cell to mutate into an egg and the rest is straight-forward nutrition. We just have to wait nine months while the egg grows and all that takes is a tank, a steady temperature and a supply of nutrient. If this lab was twice as well equipped and twice as big, it would still take nine months. You can't interfere with nature."

The man makes a loud noise. "That's a laugh! Whatinhell are we doing if we aren't interfering with nature! Still, I guess you're right. I was moaning. It's just that we've been at it so long and they keep breathing down my neck for results."

"You could show them Ox."

"Him! When I produce an android it's going to be so good they'll have to take it apart to tell it isn't human."

Problem: When I search and use Memory Recall, I remember the data which specify the difference between humans and other animals. My own specifications are identical with human ones. Yet the man and the woman constantly refer to me as if I was different.

Action Taken: I speak. "What makes you human and me not, Griffin?"

Observation: He answers, "I had a mother."

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"Griff!" the woman says sharply.

"It slipped out, Kate. Besides, why shouldn't he know? You've left big gaps in his education."

"Knowing that sort of thing would give him complexes. As you said, I'm the psychospecialist around here, and I've got my orders too. I was instructed that on no account was he to be told anything that would confuse him, anything beyond his ability to understand, anything that might engender in him feelings or emotions."

"I don't remember that, Kate."

"Maybe it wasn't put that way, but that's my interpretation. No soul, they said. Make for us a living creature in the image of man, but keep the image purely physical. Let him be able to think enough to control his body but don't teach him to think about any whys and wherefores. This is a scientific project, Miss Asche, they said. Confine it to that, remember you are a scientist and not a moralist. What you will do will be safe, legal and will offend no one—provided you do only what you are asked to do and no more. But give your android any of the inner and unseen attributes of man and there will be hell to pay. For one thing, the religionists will raise such a stink it could get the government thrown out. For another . . . they never did finish that sentence, Griff."

He nods his head. "You know why. Here we are, on the doorway to the twenty-first century, and even among brilliant scientists and politicians there is still a hard core of superstition. They're afraid, Kate. Afraid to let us make a real man."

I wait until I am sure they have no more to say.

Then I ask, "What is a mother?"

Memory Recall: Lactic acid accumulates in human muscles after working. This causes fatigue. The human brain also tires. Humans require periods of rest. The man and woman have left the laboratory. They must be fatigued.

Conclusion: This is night.

Observation: The lights have been left burning because, as I have been told, I do not sleep. I hear the hum of the electric motor and the sucking sound of the pump which interchanges the fluid in the tank at the end of the laboratory.

I know I must not touch anything. But looking is not touching. I go

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to the tank and observe its contents.

There is much cloudy fluid. It would seem that Griffin made a misstatement as there does not appear to be any shortage of this nutrient. Deep in the fluid, almost hidden, there is a small bag. The man calls this a sac and it is semi-permeable.

That is all I see. There is no mother.

I go back to my pallet. I apply Memory Recall to everything I have been told about my body and human bodies. One by one I identify my bones, my internal and external organs. When I have come to the end of my list, I have accounted for every item and there is nothing left over.

It is true. I have not got this mother that Griffin spoke of.

Problem: What is a mother? How can I learn?

Action Taken: The woman always arrives at the laboratory before the man. She always answers any of my questions. As soon as she comes in, I ask what I have asked once before.

Observation: She exhales a slow breath.

"You should never have heard that remark, Ox. I suppose I had better give you some sort of explanation, eh? Otherwise you'll go on thinking about it and probably wind up with one of the complexes I was trying to prevent. Has it been worrying you?"

"What is worrying, Kate?"

"Omigod, I'm as bad as Griff. It must be that early morning feeling. I forgot for the minute that you don't know about emotions. I'll put it this way, Ox: have you thought about this all night?"

"Yes."

"Then tell me why."

I treat this as a problem. I find no solution. I cannot answer.

"Silence," the woman says. "You don't know. And I don't know whether that's a good sign or a bad one. Damn that Griff! Sit down, Ox. I'll see what I can do to help you. You want to know what a mother is? Well, a mother is a human, a female human like me."

"Are you a mother?"

"Omigod, no. Not yet at any rate. A mother is—well, humans are not grown in tanks like that one over there. They are grown in mothers. That's all I'm going to tell you, Ox. Don't try to understand it, and don't ask me any more. That's all you need to know."

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I think, remember and say, "Griffin has one of these?"

"He has."

"Do you have one?"

"I had . . . no, that will confuse. Yes, Ox, I have a mother."

"But I do not?"

"Omigod, Ox, I *said* no more questions. But if it will make you any happier—I mean if it will solve your problem further . . . whyinhell doesn't Griff get here on time—you could say I am your mother. This is getting worse and worse. Look, Ox, a mother is more than I said. A mother is a human who teaches her children—these are young humans—she teaches them to speak, to think, she instructs them on the facts which they later use by Memory Recall. And since I taught you, that makes me more or less your mother . . . Oh, hello, Griff. Whereinhell have you been?"

Griffin widens his eyes. "What's the excitement? It's only ten past nine."

He looks at me. "Has he been up to something? Broken anything?"

"No, Griff. Just asking awkward questions. Forget it. We'd better not discuss it in front of him. I'm afraid I may have said too much already."

They move to the far end of the laboratory so that I cannot hear what they are saying. Kate is talking quietly all the time. Griffin talks quietly too, but sometimes his voice rises and a word or two reaches me. The snatches of conversation which I hear present me with problems.

I hear him say, "—if you think he's going to cause trouble, it would be better."

Kate's lips move and she shakes her head.

"Why not, Kate? It would be quick and painless. And it isn't as if he was human."

The woman shakes her head again and says something else which I cannot hear.

Griffin's voice is quite audible. "Well, you started it! All right, maybe I made the first mistake by mentioning mothers. What I meant was you started this business of suggesting he could be a menace. It was you who said it looked as if he had begun emoting."

Problem: I am sitting doing nothing, the chain from my neck lies loosely at my feet. How can I be doing this emoting."

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Memory Recall: Miss Kate used a similar word only yesterday. She said I must not be told anything that would give me emotions. Emotions were the inner attributes of humans. Because of this, she said, humans have souls.

Additional Problem: I have no mother. Now I am also being denied emotions and a soul. Kate and Griffin are trying to make an image of a human. Why are they omitting three things which seem to be essential? Perhaps this is why they have not succeeded, why Griffin speaks loud sometimes and says I am a failure.

Observation: I take no action. I am thinking that the necessary action is for me to get these things. But getting them presents further problems. I must wait until I possess more facts. When I have them, I will use them to solve my problems of how to obtain emotions, a mother and a soul. Then I will not be a failure.

Statement: After three days I am still a failure since I have not yet acquired emotions or a mother or a soul. Nor have I learned any more about how to get these things which will make me a success. I have gone over my complete Education several times—the woman has often said my Memory Recall is fantastically efficient—and I am sure I have missed nothing. Yet I have found no clue about any of these things which I am seeking. From reasoning it follows that such information was omitted from my Education. This agrees with something Griffin said: that Kate had left gaps in my Education.

Problem: I have noted that the more I have delved into Memory Recall, the more there have been of certain physical phenomena. My fingers have felt an increased flow of blood through the veins at my temples; and on two occasions I could not eat until a gripping pain at my diaphragm had subsided. These phenomena appear to be particularly associated with Griffin. They are most intense when he is in my thoughts. Why should this be so?

Observation: Griffin and Kate appear to have come to some conclusion. In the past three days they have continued to talk quietly. Even so, I reasoned from the way they looked at each other that they were in disagreement. Now they talk more openly and do not argue so much.

Griffin says, "You're quite sure this is the best way?"

Kate replies, "It's better than what you suggested."

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"I only hope it works."

"It will, Griff. I've been his teacher from the start. Everything he knows, I taught him. We've decided that one way or another I've told him too much. So—"

"So you think you can unteach him?"

"I don't see why not. Under the mild hypnotic in that syringe, he has always been very responsive to anything I've said. It should work equally well in reverse. I'll talk to him while he's under hypnosis, I'll erase all those accidental remarks. And he'll be back where he was—a harmless animal."

"You're not regretting it, are you, Kate?"

"Professionally, yes. I can't help thinking we could be wrong. Maybe the specifications we got were wrong too. Maybe if he knew the whole truth he would be less dangerous than if he only knew some of it. After all, we humans get by—complexes notwithstanding."

Griffin puts a syringe into a rubber-capped bottle and withdraws fluid.

"Kate," he says, quietly. "We've been over all that. If we're making an android, it has to be the kind of android they asked for. Ox never was that. And through a little careless talk he is not only an imperfect android, he is also an android who knows more than is good for him."

"Or for us?"

"Could be. Anyhow, we're going to kill this mother idea he has."

He continues talking but I do not hear what follows.

I have a problem. Griffin said I had no mother. I have searched carefully and found no mother. I cannot understand how he can kill what I do not have. Also, I cannot understand why he should kill a mother. A mother is not a fly, does not feed on putrescent matter, does not bring harmful germs into the laboratory.

Memory Recall: I recall a recent memory which I have missed in my cogitation over my problems.

Kate is my mother. She said so. She said she was my teacher and therefore my mother.

Problem: Why is Griffin going to kill Kate?

Observation: He takes her arm and pulls her towards me. He has the loaded syringe in his free hand. The syringe must contain the killing. Yet Kate does not seem to know she is going to be killed. Like the fly

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on the Liebig did not know I was going to kill it.

Kate is my mother. Griffin is going to kill her.

I know I must not speak if it will interrupt.

But Kate is my mother.

I must make myself useful about the laboratory.

Kate is my mother. Griffin is going to kill her. Did anyone kill *his* mother? This could not be so. He said he had a mother and I did not.

But Kate is my mother.

I have a mother!

"Kate," I speak. "You must not let him do it."

They look at each other, their eyebrows raised. Griffin says, "We're not a second too soon," and he holds up the syringe.

I move quick. I knock the syringe out of his hand. It falls to the floor and breaks. But he can get another and still kill Kate. I hit his head. I hit it hard like I hit the fly. Kate is screaming. I hit him until he is folded across a bench. I hit him and hit him until I know he cannot kill my mother.

Now he is dead. There is only Kate and me. My mother and me.

I go to her. She runs back. She screams. I want my mother. I walk. She moves fast, going for the door. I know my chain will not let me reach that far. I must stop her. I must not lose my mother.

I stride large and hit her. I do not hit hard like I hit Griffin. A mother is not a fly, does not feed on putrescent matter.

She goes down to the floor and lies there. I pick her up, take her back to my pallet where I sit with her in my arms. She does not wake yet. But she is safe. I have not lost her. I think about this for many days as I sit here.

Statement: I have confessed to myself the things which have happened. It does not make the blood bump in my head or make a pain in my stomach. I have solved part of my problem. I have a mother. I am not so much a failure as I was without a mother.

As yet, in spite of the many days I sit here with my mother and think, I have not found the other two things needed to make me a success.

I have not found my emotions.

I have not found my soul.

But confession is good.

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AN EDITORIAL ASIDE

The publication of THE FANTASTIC UNIVERSE OMNIBUS (Prentice-Hall, $3.95) is recognition—not of the influence or lack of influence of the magazine—but recognition of the phenomenon what while the ranks of the magazines are thinning, there is renewed awareness, in trade publishing and elsewhere, of the importance and significance of this field in which we work.

Science Fiction is many things to many of us. It is an escape for some from the realities of the world around them—a glittering never-never land where they may walk in blissful ignorance of the storms just outside the magic portals. It is a way of life for still others who, attracted to the field for a variety of reasons, find in SF fandom an answer to needs as old as anything history can offer us.

And still others see in Science Fiction possible answers to the chaos and the confusion and the hopes and the fears and the dreams and the ambitions which are so much an integral part of our times. Somehow—some way—it is to be hoped that we will mature, we who call ourselves Man, and who ignore the possibility that Man may not be a unique phenomenon.

I would like to think that this latter point is what attracted some of you to *Fantasic Universe* and, now, to *New Worlds*. If so, it is unnecessary to point out that Man, we believe, will not necessarily alter physically in that immediate or less immediate future with which we are concerned. Man will be essentially like Man today—with this presumed difference that this Man, in that Day after Tomorrow, will be influenced by different pressures, and will have different hopes and dreams and fears and complexes.

And different mores.

I have written elsewhere that history is not a recital of dry-as-dust dates—but that it is the story of men and women, very much alive as they loved and hated, as they schemed or fought in order that the dreams and the hopes and the fears—and the mores—of another day be satisfied.

Similarly the history of Tomorrow will not be the recital of simply facts—it will be the story of the doings of men and women, as foolish or as brave, as corrupt or as dedicated, as those we know or read about today.

If we accept this fact, and if we simultaneously recognize Science Fiction as a mature literary form, where much can be said and still more suggested, we can approach the stories in this magazine and in the field with the understanding that they merit.

HANS STEFAN SANTESSON

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ABERRATION

by ROY ROBINSON and J. A. SONES

Dr. William Marks, head of Cybernetics, straightened his back wearily, ruefully running a hand through his wavy black hair. "It's no use, Karl, our checks can't be wrong. There is a significant deviation once more."

"It is unbelievable," muttered his colleague, Karl Mitlenger, "we have applied corrections to compensate for the last deviation. I can't see how another one could have recurred so soon?"

"But we couldn't find the source of the last divergence," reminded Marks. "That in itself was peculiar. An occasional large deviation may occur at some time but two so soon, no! Our applied checks are indisputable."

Mitlenger pondered for a time. "Hmm, well, we can do nothing more. It is beyond us. You had better make a personal report."

Marks nodded and made to leave the cubicle. Threading his way through the main laboratory, his thoughts preoccupied, he scarcely heard the casual greetings from other workers. The laboratory building was one of several which were the above-surface appendages of BEDO-IV, the gigantic cybernetic unit whose function was to control

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the city. The laboratory was, in fact, a computer centre by which BEDO-IV could receive and give information for the smooth operation of social and economic life. Marks was a member of the executive staff of the centre and as his whole life had been schooled for the service of BEDO-IV he had come to rely upon the infallibility of the great machine. He was uneasy—that the machine could have developed a fault was manifestly impossible.

Marks soon reached the administration sector of the computer building. Entering an elevator he was carried up to one of the higher levels. The chief executive's office was reached by means of an adjoining corridor. Marks tapped on the door, which opened in response to a soft contralto voice. Crossing the office he approached the secretary's desk.

"Is the chief available?" asked Marks rather shortly. "I should like to see him urgently."

The secretary pressed one of a bank of studs lining her desk. "Yes, he is here to-day. Just one moment please, Dr. Marks, while I see if he will receive you."

She spoke softly into the intercom and then looked up. "Yes, Dr. Forbes can see you at once. You go straight in."

Marks thanked the girl, briefly acknowledging the warm smile she was giving him, for he was one of the most eligible bachelors in the city and executive scientists ranked highly in social life.

Dr. Douglas Forbes was a small, dapper man with a carefully trimmed white beard and sharp eyes. A shrewd brain and capable administerial ability had earned him the respect of his staff. He motioned Marks to a seat and eyed him quizzically; people did not make requests to see him personally without good reason.

"Good afternoon, chief," said Marks, "I have some important results which I think you should see." He placed the results of his calculations on the desk. "This graph will give you the over-all picture. This divergence of curves is in error according to our checks."

Marks waited impatiently while Forbes scanned the graph and read the accompanying mathematical summary. Eventually his chief leaned back in his chair and their eyes met.

Forbes fingered his beard thoughtfully. "You are sure of this?"

Marks inclined his head. "Yes, Mitlenger and I have meticulously

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cross-checked each other. There is no possibility of a mistake."

"This will certainly require a special meeting. My secretary will inform you when this can be arranged. In the meantime I should like you to confer with Nolan on this. We shall need more data than you have here, particularly on the extent of the deviation. I presume Mitlenger is working on this now?"

Marks indicated assent. "Yes, I left him doing it but it will take some little time. If Nolan's team can help, perhaps the job can be finished quickly."

"Good, attend to it immediately. I will have someone take over your other work." The chief activated the intercom and began to issue the necessary orders. Presently he turned again to Marks. "Have you anything more to add?"

Marks shook his head. "No, chief."

"Very well—I shall expect a report by tomorrow afternoon at the latest."

Marks left the inner sanctum, in better spirits than when he entered, acknowledging the respectful but friendly farewell of the pretty secretary on the way through the outer office.

Cyril Nolan, divisional head of statistics, a lean tall man of fair complexion, had been notified that Marks was on the way over to his office. He rose to greet Marks affably. "Hello, Bill, the Old Man tells me you have a problem?"

"A curious one too," replied Marks, "Look at this graph."

Together the pair leaned over the report which Marks spread out on a nearby laboratory table. Marks wasted no time in acquainting Nolan of the nature of the problem.

"As you can see, these curves of certain consumer goods are diverging. Instead of reaching optimum production as predicted they are insufficient for estimated demand. In fact, the insufficiency stimulated an enhanced demand which has set up secondary disturbances in the price structure. We ignored a similar deviation which occurred a year or so ago, and applied the necessary corrections. But this recurrence is too much. I think that a more thorough check is required. This is where we need your help."

Nolan puffed his cheeks in thought, "I suppose an error . . ." He

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saw Marks' expression and continued quickly, "damn, this will mean working all night!"

"Mitlenger has produced a guide for you as revealed by our own checks," said Marks, handling Nolan a slim sheaf of papers.

Nolan glanced over them. "This is a help," he agreed, then his voice became more decisive. "I will get the boys working on this right away. You will have to excuse me, if this is to be finished by tomorrow."

Marks nodded, wordlessly, events were out of his hands now. Actually he felt somewhat relieved, for Nolan was a good man at his job but his mind clouded again at the thought of the problem. The present work would be mere fact-gathering, tomorrow's meeting would entail the much more difficult task of forming interpretations. However, nothing more could be accomplished here, and he took leave of Nolan, who was already issuing instructions to his staff over the intercom.

As Marks journeyed to his flat he pondered upon the implications of the deviation. Stepping upon the continuous strip-roads, which were the primary form of locomotion for pedestrians, he made his way to the faster strips. Soon he was being whisked along at a steady fifteen miles an hour. The strips were almost deserted at this time of night, with a few people homeward bound from the stereos. How could the deviation have occurred? The applied corrections should have settled the matter. Ten million people depended upon the smooth functioning of the city and there was scant room for errors in the finely adjusted economy. Marks allowed his thoughts to dwell momentarily upon the city's evolution.

Following the holocaust of the last inter-continental atomic war the population of the world was decimated and the survivors seriously maimed. Starvation and strife were rampant in a stricken world and much of it fell into the semi-barbarism of sparring factions. A few sectors were untouched, however, by the twin fingers of destruction—radio-active pollution and social disruption. Confronted with stark reality, from these rose a people with the fierce resolve that such a catastrophe should not happen again. Law and order were established, slowly and painfully. The population size had to be confined within the limits of comfortable subsistence and its germ-plasm cleansed of deleterious mutations. Arable land had to be conserved at all costs and man-

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kind began to build skyward and into the depths of the earth. The cities came into existence, foci of activity, composed of elegant sky-scrapers whose roots burrowed deeply. The development of giant electronic brains enabled civil administration to be greatly simplified and rationalized, and the city communities stabilized between eight and fifteen million persons.

Powerful impetus was given to the neglected studies of socio-economic planning and the realization of dynamic equilibrium between production and consumption by a society forced to live within a confined space. Gradually the individual communities found a mutual interdependence and the whole globe became covered with a network of more or less autonomous cities. The forging link was the deliberately nurtured stimulus of appreciation of scientific achievement.

Arriving early at the computer centre the following morning, Marks found a message that Nolan was asking to see him. Marks settled a few routine enquiries from his technical staff and then went straight to Nolan's room. Nolan was looking dishevelled but he replied cheerfully to Marks' customary greeting.

"Hello, Bill. Well, we finished it. Here's all the data you want. It's only cost me a night's sleep! While you read it I'm going for a clean-up."

Marks leafed through the contents of the bulky folder, seating himself on a spare chair by Nolan's desk. Presently Nolan returned, carrying a tray with sandwiches and coffee. He began to eat, remaining silent until Marks had finished reading.

Marks accepted an offered cup of coffee, his brow furrowed. "There is evidence of concerted action in the city. I wouldn't have considered it possible for a monopolistic combine to form."

Nolan grinned. "What is a monopolistic combine?"

"An archaic expression I will admit! It implies that a group of people unite for the purpose of furthering their own ends at the expense of the community. Heavens, we haven't seen anything like this for over three hundred years. This could be serious, leading to strife and unrest."

"We're not going to tolerate such anti-social behaviour," stated Nolan. "I'm against it on general principles and, more so, if it introduces a disruptive element into the city."

"Undoubtedly it would, if allowed to continue," affirmed Marks,

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"but it will not—it cannot! Have you circulated copies of your findings among the exec?"

"Yes, I have. And, Bill, the Old Man has called a meeting for this afternoon."

Marks and Nolan continued to discuss the implications of a monopolistic tendency in the economy of the city for a considerable time. At length Marks took leave, to follow up a few ideas of his own and to study the results of Nolan's labours.

II

Marks was feeling a little disgruntled as the time for the executive meeting drew nigh, for his own ideas had come to naught. The murmur of voices grew louder as he approached the staff room, where most of the executive members had already gathered. Marks walked over to join Nolan in conversation with two of their colleagues. Dr. Forbes was not long in arriving and the room quietened as the group dispersed around the centrally placed table.

Forbes looked expectantly around the assembly.

"Each of you have had opportunity to read the report given by Marks and Nolan. I should like to have your comments upon it later but I think that in the first instance Nolan should give us a short account of the situation."

Nolan rose slowly to his feet. "We are confronted with the curious situation of concerted action by a group of entrepreneurs," he began. "You all know that the city allows considerable freedom within the general framework. The social structure is biased towards decentralisation. But just recently we have found a reversal of the bias of such a magnitude that it cannot be ignored. To overcome the corrections which we applied some twelve months ago, requires information only available to ourselves."

"How do you know that?" interjected a voice.

"Largely because the information is coded. Essentially it requires the solution of complex econometric matrices. A human mind cannot cope with such equations. In fact, it requires the combined efforts of both Marks and my own staff to codify the material. No one person handles the lot. Even so, the only people who are trained in this work are those

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employed at the computer centres. At this point I should mention that I have recommended a security check on this aspect."

Forbes indicated a desire to speak. "Allow me to interrupt here. I may say I have circulated the other centres, requesting immediate action in this matter. I have queried if any of the cybernetic coders have left without good reason. Summers of security has also been notified."

"My belief is that the solution will not be found there," continued Nolan, "because of the inherent complexity of the problem. To take advantage of the information—however obtained—and to put it into practice, an organisation larger than is legal would be needed. I wish to offer an explanation later, but as it will doubtless appear fantastic, I would rather wait until the rest of you have spoken. A more likely idea may be put forward."

Scarcely had Nolan resumed his seat than Kelvin Brighton, of the mathematical division, indicated a desire to speak.

"I should like to ask if it is possible for BEDO-IV to be in error?"

"No," replied Marks, "that contingency has been specifically checked."

"I should like to ask Nolan if it would be possible for a genius to comprehend the econometric equations?" This question came from Hedda Girvan of sociology.

Nolan smiled. "Yes, it is possible. But only if the genius was passed over by the psychological tests. This, I presume, is not . . ."

"I don't think the idea is impossible," broke in Girvan, sensing that the possibility was being bounced back into her lap.

"Well, if not impossible—then improbable. But there is another objection. The necessary information is not available to any one person. Even if he was capable of using the information, I cannot see how he could obtain it in the usual way?"

"Could there have been an error in the original data? In the data given before the deviations were noticed?" queried Brighton.

"No," answered Marks. "That type of error is allowed for by the structure of BEDO-IV. Really, Kelvin, there is not the smallest possibility of error."

Nobody responded as Forbes looked expectantly around the table. "Any further comments? No? Then, Nolan, will you give your explanation?"

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"Well," said Nolan hesitantly, "I believe that we have in our midst a telepath. After all," he went on, to the accompaniment of surprised murmurs and half-voiced objections, "occasionally we do have the individual who exhibits weak telepathic powers. Usually he ends up in the entertainment world. But here, I suggest, we have something different—more serious perhaps. A high grade telepath. He probably knows from this moment that we suspect him."

Nolan sat down to the silent stares of the executive. The suggestion was indeed fantastic, yet it did fit the facts. A person who could not understand the econometric and social equations, who probably could not even draw the correct conclusions from the equations but who could read the conclusions from the mind of trained operators in the centres. How otherwise could the information have leaked for all orthodox explanations were ruled out?

Forbes let the meeting cogitate in silence for a short period before speaking.

"This is an astounding explanation but I gather that no one can offer an alternative? I thought not. In which case we will act upon Nolan's hypothesis. Have you formed any suggestions for detecting the telepath?" This last question was directed at Nolan.

"I have a few ideas," admitted Nolan. "I think we should proceed by eliminating all those who cannot be the telepath. The first twenty years or so of any individual is spent in schooling and we can assume that this can offer little scope for the sort of economic activity which we have encountered. We can compute the minimum time required for the appearance of the first deviation. Sum the two and we have his minimum age. His upper age limit can be found by estimation of the time required to establish an economic group large enough to cause the deviation."

"The computer should be able to do this with the facts at our disposal," commented Marks.

"One moment," objected Brighton, "how can you say the telepath will start his activities immediately upon leaving school?"

"For reasons I will explain, Kelvin. He will be a congenital telepath I think, in which case his emotional upbringing must have been hectic to say the least. He probably appeared unusually bright and cheeky, and suffered for it. You know what children are! They would quickly

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sense an abnormality and take it out on him, he would feel the full force of childish hate and jealousy. Almost certainly he would learn to hide his power in time. But I should like to ask Hedda her opinions on this?"

Girvan quickly complied. "Yes, indeed. This line of reasoning can be extended. May I?" Nolan nodded. "Our imaginary telepath would soon develop a sense of superiority. He would know all the answers but he couldn't use them without inspiring jealousy. In all probability he would become paranoiac, contemptuous of ordinary people and antagonistic to authority and seeking power as a form of compensation."

Nolan resumed at this point. "I had assumed the latter, the quest for power finding an outlet in economic activity. This is an accepted form of exercising power over one's fellow men, within limits, of course. With his telepathic ability, he would be successful but sooner or later he would come into conflict with the general conduct of the city as laid down by our computer."

"I wonder if we can attempt a direct approach?" suggested Alan Scott from economics. "Manipulate the market and bring into the open either the group or your telepath. This group could be broken easily."

"I can see I haven't made myself clear," stated Nolan. "There isn't just a closely knit group, or if there is, it isn't obvious. But this is something we can follow up easily, once we have uncovered a lead. Manipulation of the market is of no use since the telepath would be aware of any schemes as soon as we make them."

"I have two suggestions," spoke up Girvan. "All permanently hospitalized persons and all long-married couples can be excluded. I don't think the telepath could tolerate a permanent union with the opposite sex. He couldn't tolerate the unvoiced home-truths or criticisms of his partner. By the way, everyone is referring to the telepath as a him but it could be a her!"

Forbes half-smiled at Girvan. "That is something to keep in mind certainly. It is apparent that the most likely means of unearthing the telepath lies in further refinements of Nolan's elimination methods. Marks and Nolan will continue in charge of the investigations and the rest of you can submit your suggestions direct to them. The meeting is adjourned until tomorrow when I hope the size of the problem can be more accurately judged. As I see it, it is a matter of whether the crimi-

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nal is one of a few hundred or a few hundred thousand people."

The executive conference dissolved with each of the members departing upon their various tasks. Marks and Nolan worked steadily into the night, conferring with other members of the executive when specialised information was required, and shaping the necessary programming of BEDO-IV. They were almost exhausted before the job was complete enough to leave in the hands of technicians.

The following afternoon found the executive re-forming to discuss the second report drafted by Marks and Nolan. At Dr. Forbes' invitation, Marks opened the meeting.

"There is no need to give details of our analysis since you have these in front of you but I feel we should consider the inferences of our results. BEDO-IV was able to pinpoint the first small deviations as occurring some ten years ago. I'm afraid estimation of the interval necessary to cause the deviations couldn't be very accurate—anything from eight to twelve years. This puts the age range of the telepath from thirty-eight to forty-two years."

"I don't think we shall be far out in such an assumption," inserted Girvan rather primly, "I can't understand how psychology overlooked his abnormal behaviour!"

"There are about one thousand permanently hospitalised people in this age-range who can be excluded. Also, another thousand have disabilities of one sort or another which cause them to be under regular surveillance. We did run an analysis of new entrants to the creches but a surprisingly large number of children start brilliantly but fall rapidly to average. Too many for this phenomenon to be of value."

"That's not too unusual," pointed out Girvan. "I should like to ask if the I.Q. rating has been taken into account?"

"Yes, it has," replied Marks. "He is obviously not a moron but beyond that I would not like to go. There was one possibility which we had a slight hope would provide a useful lead. The telepath may have changed his identity, although I will admit there is no compelling reason why he should. However, it soon became clear that the possibility is barren. Nevertheless, people do just vanish and all these instances are investigated as a matter of routine by security. The number is very small, and most are suicides, and the remainder are usually found when an at-

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tempt is made to re-establish themselves in society.

"At our request, security has re-investigated all those cases which fall into the critical age limits. The results are in process of examination but those to hand are negative. We think that the telepath would be aware of the futility of a change of identity. This is probably a hint that the telepath is a person of no mean ability. By the same token, of course, the telepath is unlikely to change his identity or behave peculiarly now that we know he exists. To come to the crux of the matter, after all eliminations, we concluded that the telepath is one of about a hundred thousand people. The names of these are being tabulated."

"Great Scott!" ejaculated Brighton, "how can we cope with that number?"

Forbes looked grimly at him. "That is why we are here! Although I must say it is a problem. If there are no further suggestions I am going to move that we ask for help from another city. The range of perception by the telepath cannot be unlimited and if another city can formulate a plan to catch him, at least it will not be immediately passed on."

"So long as they do not tell us!" observed Nolan, "I must say I'm in favour. A fresh mind could probably find the answer."

"They certainly cannot refuse to help us," commented Lloyd Weyman of genetics, who hitherto had not participated in the discussion. "If the telepath settles in another city, he will continue his activities and cause disturbances there. Should we not initiate steps to prevent people from leaving the city?"

"Summers has taken care of that," declared Forbes. "No overt measures have been taken but anyone who leaves is closely investigated. But possibly the telepath is aware of this and thus will not court attention by leaving. This is an example of what we are up against," he added in a tone of exasperation. "However, I have given thought to the problem, and the man I suggest is Professor Einbeck of KUTO-III. He is a friend of mine for one thing and, secondly, he has interested himself in certain aspects of telepathy."

The mention of Professor Joseph Einbeck as the man to approach brought forth general comments of agreement. Professor Einbeck, the biometrician, had visited BEDO-IV on several occasions and was familiar with the city. Many of the executives had personally met the Pro-

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fessor while his distinguished reputation was known by those who remained.

"Very well," announced Forbes, "I will contact him as soon as possible and also send him copies of our reports. It is to be hoped that Einbeck will find the solution if one is to be found."

III

A month passed before Dr. Forbes received a call from Einbeck over the video. Forbes greeted his old friend with real pleasure. "Hello, Professor, how are things with you?"

"I keep in good health, thanks, Douglas. With regard to your problem. We have a plan to catch your supposed telepath, which we will communicate through the usual inter-computer network so as to forestall his mind reading. All we ask is that you follow our instructions swiftly and without question. You will be required to build a number of encephalographic devices. These will incorporate a number of new features, based upon the Kablet-Gortz wave-forms which are known to be associated with telepathic ability."

Forbes nodded his head, his eyes intent upon the Professor's. "Yes, we'll do that. But I thought . . ."

The Professor chuckled. "Yes, I know. You think these waves are too feeble, eh? But I put the problem to Gortz himself and now we can amplify the reactions beautifully. They are trustworthy and reliable enough for this job. I want you to set aside the facilities for the manufacture of the machines automatically from here and also inform your security chief that he must accept our instructions."

Forbes nodded again. "Certainly, Professor, we shall follow your bidding. I will make the necessary orders immediately."

The two men continued to chat about personal topics for several moments until Professor Einbeck signified that he wished to end the conversation. As the video darkened, Forbes began to take action. A small section of BEDO-IV was cleared for direct programming by KUTO-III and a number of machine shops in various parts of the city were made available. After a short delay these were soon pulsating with activity. The complexity of the new encephalographic units prevented rapid construction but eventually they began to trickle off the produc-

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tion lines for final testing. Meanwhile events were moving in other parts of the city.

Steven Summers, head of security, did not relish the idea of taking orders from another city. Besides, in his opinion, the suggestion of a telepath picking information from the minds of the computer staff was pure balderdash, made only to protect their own people. However, when his usually competent investigators failed to uncover any questionable activity and his own technical advisers told him that a leakage was practically impossible, he began to wonder. His mind boggled at the implications of the problem. That someone could know of all the tricks which his very subtle department could employ was anathema to him. He despaired of apprehending the telepath but nevertheless he grudgingly, but energetically, arranged to co-operate with KUTO-III.

The first instructions were not long in arriving. All security officers and police between the ages of thirty-eight and forty-two were temporarily suspended from duty and extra staff were enrolled from outside these age limits. A complete ban on travel from the city was applied. Guards began to appear at the entrance of the city precincts. An unnatural hush descended upon both the giant inter-city railway termini and the spacious airports. Sleek trains and giant aircruisers alike were stilled. People within the initial age range, who happened to be journeying outside the city, were recalled and failure to comply meant immediate and prolonged interrogation. A wave of unrest and apprehension swept the city but this had been foreseen and was soon checked by skilful psychological propaganda. News of the existence of the telepath was widely featured in the news magazines and for a short period, depending upon the social stratum, he was the major topic of conversation. A number of excesses occurred, particularly among the least thoughtful groups, where certain "queer" unfortunates had a rough time. Normal activity, however, soon reasserted itself as public awareness was channelled into other avenues.

The "mind-reader" machines, as these had been dubbed by the press, were housed in the larger community halls of the city. The wave-analysers were connected to rows of small cubicles the walls of which acted as receivers.

"I don't know how they work," grunted one electronic engineer when

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questioned by a reporter. "They appear to work on an entirely new principle. We just fit the parts together to the directions as blue-printed. They seem to be remarkably efficient though." With this explanation the press had to be satisfied, although it provoked some sarcastic editorial comment.

Security chief Summers, a stoutish man of indefinable middle age and dynamic temperament, glared dumbfounded at the latest set of instructions. "What's this? In batches? What's the use of that? All we have to do is to pass the lot through the mind-readers one by one. These damn scientists never think of anything straightforward!"

"Undoubtedly it is for some purpose," ventured his aide.

"I know that," snorted Summers. "Well, here are your orders. Let's have some action!"

The new instructions were dessimated throughout the lower echelons of security. That section of the population, in which the telepath was thought to be, was going to be subjected to discreet sampling. Instead of passing the suspects through the "mind-readers" in a systematic order, a different procedure was outlined. The method of picking up suspects was simple. All persons between the ages of thirty-eight and forty-two were required to wear white arm bands. Refusal to co-operate or the removal of the bands, invited instant suspicion and interrogation.

The police had power to enter all private and public buildings, offices, workshops and factories, the stereo-cinemas and community centres and the homes and sky-scraper blocks of flatlets without warning and at any time. The patrol members simply selected any person who was wearing a white arm band and requested him or her to attend the next day for an encephalographic reading. Fresh feelings of unrest and discontent began to appear in the city. The unexpected visits of the police meant that some citizens were passed through the cubicles time and time again. Protestations of inconvenience or inability were of no avail, for the machines were dotted all over the city by now, within reach of everyone.

The process of checking through the city's population lengthened into months with the subtly applied influence of the social psychologists effectively minimising the irritating delays of the examinations.

Mitlenger looked querulously across their small laboratory towards Marks who was lounging in his chair.

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"Seriously, Bill, how much longer do you think this is to continue?"

"Why ask me? countered Bill. "You know as much as I do. We have to follow instructions as much as everyone."

Mitlenger shrugged. "Maybe, but we are not getting anywhere! I know of people who have been through the 'graphs on at least six occasions. Why, I have been examined twice myself!"

"That's not so puzzling," speculated Marks. "The functions of the 'graphs may be cumulative. It may be necessary for a person to be examined many times before a conclusion can be reached. Or perhaps each individual is given a different test on each occasion?"

"It is possible," said Mitlenger thoughtfully, "that the readers may first take a preliminary graph of 'normal' reaction, followed by the real thing after an interval."

At that moment the faint sounds of commotion reached their ears. It was very unusual for a disturbance to ruffle the sedate atmosphere of the computer centre. Both men crowded into the passage and hastened towards the noise. They encountered a young woman technician, one of Cyril Nolan's assistants. Recognising Marks, she turned to face them.

"Dr. Marks?" she inquired—Marks nodded—and she went on. "It is your friend, Dr. Nolan, he has been found unconscious from a large dose of insomnia tablets."

Marks was amazed, this was quite unlike Nolan, in fact he never knew that he had need of drugs.

"Are you sure?"

The girl looked flustered. "Yes, I . . ."

Mitlenger pushed past Marks.

"Let us see for ourselves, perhaps we can be of help."

Marks nodded assent, although he knew this to be unlikely. He followed in Mitlenger's wake, his mind still puzzling for a possible motive for Nolan's action. In the main entrance they met Girvan and Weyman coming in from the street.

"What has happened?" demanded Marks, "is it true that Cyril is ill?"

"Yes," replied Girvan, "at least, we assume so. He has been taken to hospital."

"What is this all about?" inquired Weyman, "Is it possible that Nolan is the wanted 'path?"

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"Out of the question," snapped Marks. "You should know better than that!"

Weyman's face reddened but before he could speak Girvan stepped in.

"Of course we know better. Nolan's lapse can't have anything to do with his being connected with the telepath. More likely he was overworking because of the pressure which we are undergoing at the moment. All we know is that Cyril burst into the first-aid room and swallowed a half-a-bottle of quick-acting soporific before anyone could stop him. He will be out for hours."

Girvan's voice reflected concern, for Nolan was popular among the staff.

"Maybe you are right," conceded Marks a little dolefully, "but I have been in constant touch with him and I haven't noticed signs of tension."

"We can't do anything now, anyway," observed Girvan. "We must be patient until Cyril recovers consciousness."

"Come, Bill, we still have work to do," voiced Mitlenger, turning to leave. Marks wondered if Girvan was right. Her explanation of overwork was plausible but he was dubious. He resolved to visit Nolan at the first afforded opportunity.

Forbes glanced sharply at the security man standing before his desk.

"You say you wish to interview Nolan? To what purpose?"

Lawson, the security man, appeared slightly uncomfortable, shifting his weight from one foot to the other.

"Yes, sir, we are investigating every curious incident in this case. Normally, we would have questioned Dr. Nolan before now but, as he is one of your personal assistants, Mr. Summers said that I should contact you first."

"Mmmh—yes. I admit that I find this business of Nolan disquieting. Dammit man, you are not suggesting that Nolan is involved, are you?"

Lawson cleared his throat apologetically. "Well, sir, I do not know what to think. We feel sure on one point. His action is at complete variance with our information on this psycho-type. Dr. Nolan would be reluctant to take soporifics, and certainly never an overdose. I can assure you of this, for I am attached to our psycho department, and I checked the assessments of Nolan's psycho-type as soon as I received the assignment."

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"I concur with you there—I would have said the same," frowned Forbes, "but there is always room for error. Frankly I am curious. I should like to handle this myself."

"With due respect, sir, I think it would be wise if I could accompany you."

The two men eyed each other levelly for a long moment, Forbes somewhat regally and Lawson firm with purpose. Forbes' frown deepened.

"Is that really . . . huh, I suppose it is necessary in the circumstances. This is a special case—and, in some ways, a perplexing case." Forbes leaned back in his chair. "Tell me, are you familiar with the problem?"

"Yes sir. I have been given the basic outline. I may say that the task appears to be a difficult one to tackle, if not unsolvable."

"That was, indeed, our initial conclusion but Professor Einbeck appears confident," declared Forbes, as he reached out to press one of the studs on the intercom. Almost immediately the contralto voice of his secretary issued from the tiny speaker.

"Yes, sir?"

"Ah, Miss Loren, what appointments are there for this morning? Are there any which cannot be postponed?"

"No, sir. There are several but they all appear to be either routine staff reports or V.I.P. visitations."

"Right—defer the reports until tomorrow and have the visitations received by the deputy executor with suitable apologies. Also contact the Haldane Memorial Hospital to ascertain if it is convenient for me to visit Dr. Nolan in say, about sixty minutes—and notify my pilot to have the gyro available. I expect to be away for the remainder of the morning. If an important item should arise you can contact me at the hospital. Has the latest directive from KUTO-III arrived?"

"Yes, sir, just arrived. I was waiting until you were free before bringing it to you."

"Good, please let me have it at once."

Within the interval of a few minutes, Forbes' svelte young secretary entered the study, carrying the communique from KUTO-III. She paused politely before Forbes and placed the small sheaf of papers on the desk.

"Thank you, Miss Loren. If you will excuse me, Lawson, I should

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like to glance through this. Find yourself a seat."

Dismissing Lawson temporarily from his mind, Forbes concentrated upon the contents of the communique. Eventually he looked up.

"Have you seen to-day's communique?"

At Lawson's shake of head, Forbes continued. "There is a complete change of plan. The randomised apprehension of suspects has been dropped and the names of certain individuals are now listed. No reasons are given but the implication is clear. Einbeck has evidently narrowed the field immensely. But has this change anything to do with Nolan's behaviour or is it merely a coincidence? Have your people notified KUTO-III of Nolan's action?"

"I'm not certain on that point. My own guess would be that they have not."

"It is certain that speculation will not get us far. If you are ready, we can visit Nolan immediately."

The men left the study, Forbes leading the way in his usual brisk manner, walking quickly through the outer office and along the corridor to the elevator. With a subdued whine, which rapidly increased in pitch to beyond the audible, the elevator whisked the couple to the gyro port nestling on the top of the computer skyscraper. They were met by Forbes-pilot, who, with a respectful salutation, led the way to the small hover-plane. The landing platform was drenched in brilliant sunlight but at such a high altitude a perpetual fresh breeze kept the platform at a pleasant temperature.

IV

The gyro rose gracefully from the platform, soaring upwards in a wide arc, as the pilot steadily increased speed. Forbes lapsed into an uncommunicative mood during the journey and Lawson contented himself by watching the unfolding panoramic view of the city. He had little opportunity for gyro flights in the normal course of events, even as a security officer, for the method of transportation was restricted to essential services or was the prerogative of high ranking personages. Whereas the computer centres were erected at the hub of the city, the hospitals were sited among the few remaining open spaces in the suburbs.

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The gyro port of the Haldane Memorial Hospital was humming with activity. Gyros were arriving and departing in a steady procession of bright silvery machines. Forbes' gyro was forced to join the incoming queue but the 'permission to land' signal was soon received. The pilot set down the little plane with scarcely a jar and, scrambling from the cockpit, he held open the cabin door for Forbes and Lawson. A multitude of signs directed them to the reception desk and Lawson's authority soon negotiated the inevitable bureaucracy which encompasses a large hospital. Presently they were ushered into a small private ward.

Nolan was lounging in bed, propped up by a stack of pillows, reading a book. Further volumes were untidily piled upon a bedside cabinet. Seeing Forbes and Lawson he laid the book to one side.

"Morning, Nolan, how are you to-day?" began Forbes, striding to the bedside. "This is Alan Lawson of Security."

"Good morning, chief. I'm fine now, thanks. Hello Lawson—glad to meet you."

Lawson reciprocated the greeting with a friendly grin. "I'm glad to meet you. I can see you are indulging in some light reading!"

Nolan emitted a low chuckle. "I'm now able to do some catching up on reading I have been putting off for years! Some econometric analysis which is, I think, off the beam—those lambda functions of Spellman's do not look so stable as he . . ."

"Yes, yes, we can discuss that later," broke in Forbes a little testily. "I will come to the point—why did you behave as you did? Why did you break into the first-aid room?"

Nolan looked serious.

"May I ask you a question first? How close are we to identifying the telepath?"

Forbes grunted. "Well, it would appear that something is brewing. Einbeck is still running tests but the instructions have changed—only recently, as a matter of fact. A group of individuals are now being questioned instead of samples."

"So not much progress has been made?"

Forbes cast a sharp glance at the man on the bed, for Nolan sounded alarmed.

"To be precise, no. But can we be precise? The only valid argument I have heard is that of Hedda Girvan's. She has suggested that, while

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the telepath may behave rationally as long as he thinks he is invincible, he will go to pieces once he is identified. To me that appears a circular argument. He will not break down unless he knows we have him, yet we are waiting for that very event to find him!"

"Hedda's argument is only partly true. Do you know if everyone in the city has been through an encephalographic analysis?" further questioned Nolan.

"Well . . . I do not know. Keeping a check upon that aspect would be a sizeable task. We have no equipment for that. Do you know if your department has, Lawson?" Lawson only shook his head.

Nolan laughed. "I bet Einbeck's KUTO-III has!"

Forbes was puzzled. "Look here, you haven't answered my question about yourself."

"I thought I had discovered the method used by Einbeck either to detect the telepath or to bring him into the open—probably the first. But I also realized that the telepath might pick the method from my mind, and, if this occurred, the method would fail. I was distraught for a moment, I can tell you. I tried reciting math formulae and tables but my mind subconsciously wanted to return to the implications of Einbeck's plan—and that would be fatal! Then I realized—of course, a sleeping draught would do the trick. Knock myself out for a while, especially so I would be removed from the centre. The telepath would doubtless be scanning the minds of the computer staff periodically but he would be too busy for random excursions elsewhere."

"Yes, that aspect had occurred to me," commented Forbes. "I wondered if his faculty could be directional."

"There was the chance that he could have mind-read me out here, in the hospital, but what else could I do? I couldn't stop at the centre very well. That would have been fatal!"

"You certainly had us worried."

"Yes, I suppose so, and I'm sorry for that. I couldn't discuss it with anyone, nor could I state the purpose of taking the drug without giving too much away. Presumably a mere flicker of a thought would have been enough for the telepath. Hermaphroditus! Those after effects, the hallucinations—my mind will never be the same again!"

"What is this method you spoke of?" persisted Forbes.

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"Well, the sampling was supposed to be at random. Correct? And the method of finding people to be analysed was designed expressly for that purpose? We were told that the 'graph units were capable of detecting the telepath from the wave-forms of the mind. It would seem logical, therefore, looking at the matter from the point of view of the telepath, that he must not allow himself to be picked up for analysis. It could be assumed that he would be aware of any patrol in his vicinity which was likely to trap him. If he was astute he would dodge the patrols for years, if not indefinitely. As I see it, that was our problem in the first instance. Then it occurred to me, suppose the analysis was a bluff ? Unless a telepath has been analysed before, how did Einbeck know what to look for?"

"He would check for deviations from the norm."

"Ah, but what a task. Each of us must deviate somewhat significantly in one or more wave-patterns. I grant you, of course the fact that many of these must be known to be innocuous or related to some other known aptitude. But, aside from that, the telepath wave-pattern may be terribly complex. No, it occurred to me that there is a simpler, more direct explanation. It only requires time and the tabulation of results. The telepath would reveal himself by failure to be picked up by the patrols! Anyone who did not, at one time or another, pass through the mind-readers would be behaving in a non-random manner. It is difficult to see how it could be other than the telepath."

"I see," said Forbes. "If the telepath had realized that not appearing for analysis could be detected, he might have risked an appearance."

"Or inveigled someone to take it for him," agreed Nolan, "risky as that would be. But I plumb for the theory that the provision of machines was partly window dressing and the real objective was to frighten the telepath into not allowing himself to be analysed."

"I can see, now, how important it was that you should not communicate the method to the telepath. Most ingenious, most ingenious indeed." Forbes emitted a low chuckle. "I wonder if the telepath will ever know how simply he was outwitted?"

Nolan looked at his chief with a slow smile spreading across his features. Forbes caught the expression and his merriment ceased abruptly; he glared at Nolan.

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"Do you realise what you have done? I shall not be able to return to the centre!"

"Yes, I regret that I do. But what else could I do? If I had attempted to fob you off with some likely story, I might not have been successful and you might have returned to alert the telepath. He might have sent his mind out here to scan what I know."

"I say," protested Lawson, "I'm only a layman in these matters, but if I have grasped the situation, does this mean that neither of us can return to the city's centre? What am I to say to Summers?"

"Tarnation man, yes!" barked Forbes, striding around the room in vexation. "This whole business is a nightmare. It is now a race between Einbeck's plan and the repercussions of our stay here which might incite the curiosity of the telepath?"

He halted his pacing at the far side of the room and swung round to face the other two, throwing out an arm to emphasize his point.

"I have it—there's going to be an epidemic of some contagious disease and the proclamation of a quarantine area—right now. I know some of the top people here. They can—in fact must—arrange something."

Without more ado, Forbes tugged open the door of the room and hastened down the passage outside.

V

Events in the city moved to the inexorable climax. Abruptly the method of haphazard sweeps for likely suspects was halted and fresh, more orthodox, orders were received. Certain specified men and women were to be apprehended and given a thorough examination. Marks was working in his room when Girvan came to see him with the news.

Marks looked up at her excited question. "Have I seen the latest instructions? Why, yes, we were being kept informed here. Why do you ask?"

"Because of the change of plan. Instead of picking up anyone who happens to be around, a list of names of about two dozen people has been given out."

"Ye-es?"

"Well, if the telepath is included among them, as is likely, do you not see what may happen? He probably thinks that he is invincible, if I

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can comprehend his state of mind. Yet if he has been detected, can you imagine his reaction? Anything may happen." Girvan looked at Marks expectantly.

Marks pondered. "What can happen? Whoever it is will be caught eventually, even if he goes into hiding."

"It isn't so simple as that. I think that his mind may not accept the reality of his detection, and he may behave irrationally. In fact, his mind may give way."

"That is possible, certainly, but what of it?"

"We ought to inform Summers. If the 'path makes a violent effort to escape he may be killed out of hand. You know the police, shoot first—think later. Technically, it will be resisting arrest but actually it will be merely the action of a frightened man."

"That's all very well, Hedda. What do you want us to do? We can't be in a score of places at once? The arrests are probably taking place at this moment."

"I'll tell you what we can do! Summers can insist that the 'path be taken alive. Just consider the opportunity of studying a brain capable of telepathy on an advanced level! The opportunity will not occur again."

"Surely Einbeck's people will have made allowance for that?"

"Maybe, but maybe not. We can at least reinforce Einbeck's instructions. This is just the sort of minor detail Summers may choose to ignore—besides we are on the spot. Come on, Bill, Summers will have to take notice if we are at his elbow."

Marks allowed himself to be hustled in the direction of Security headquarters. There was something in Girvan's remarks. If the telepath became violent and particularly if he had a weapon, the police might act without remorse. In a tense situation their strong bond of mutual self-protection would assert itself. The opportunity of first-hand study of the wave-pattern of the telepath was too valuable to be thrown away during a few moment flurry. The outcome could mean that potential telepaths of the future could be detected and be guided to become useful members of the community.

Summers did not appear pleased when he learnt of the purpose of Marks' and Girvan's intervention. He glowered at the two scientists and hunched himself over the desk.

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"My men have instructions to take the telepath alive, if possible, and we shall do so," he observed gruffly.

"Is this a special order," demanded Girvan, "or are you relying upon ordinary procedure?"

"It is ordinary procedure," said Summers stiffly.

Marks foresaw that direct argument would only result in spreading mutual antagonism. Nudging Girvan to silence, he decided to attempt a more persuasive approach.

"But you can see why it is so important to have the 'path alive," he told Summers. "Imagine how invaluable such an individual would be for the prevention and detection of crime."

Summers actually contrived to appear less sullen as he gazed at Marks through narrowed eyes.

"Yes, you have a point there. But suppose he is armed? I'm not risking my men unnecessarily."

"I appreciate that you will make an effort to bring in the 'path alive," continued Marks, "but we are perturbed that the excessive use of a neuro-gun may affect his mind. There have been several unfortunate incidents in the past.

Summers spread his hands. "I regret those too, but . . ."

At this moment an aide hurried into the room, hesitated almost imperceptibly at the sight of Girvan and Marks, and walked over to Summers and spoke in low tones. Summers listened unmoving for a moment then his eyes flickered to the aide and back to gaze steadily at Marks.

"Your foreboding may have become fact," he stated, placing both palms on the desk and rising ponderously. "A report has just come in that a suspect has gone berserk and has managed to elude capture. But he won't get far. Now you're here, you may as well come over to the ops-room." he added grudgingly.

As Summers lumbered from the room, followed closely by the aide, Marks exchanged a quick glance with Girvan. He wondered if his arguments would induce the security chief to be more responsive. He doubted it, for although the man had drive, he lacked curiosity.

The operations room was organised bedlam, not so much as regards noise but of flickering video tubes and the continued movements of the

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operators in congested space. The aide guided the group to a crowded panel of small video tubes surrounding a larger one at the level of the operator's head. Summers took in the situation at one swift glance.

"What's happening? Have we no cameras out there?"

The operator lost a little of his ingrained calm and looked up.

"Yes, sir—he has eluded us at present but we shall pick him up again soon. The sector is now ringed."

Summers grunted a reply and waved the man back to his work.

Girvan faced Summers squarely.

"I think that we should go out there," she stated bluntly, indicating the active scenes appearing in the videos.

Summers looked at her.

"All right—you can," he said, turning to the aide. "Who is in charge of this operation?"

"Captain Lane, sir."

"Issue instructions that Doctors Marks and Girvan are attached to him as advisers for this operation and have them conveyed to Lane at once."

Marks knew that Summers would not concede greater authority than this and both he and Girvan fell into step with the aide as Summers acknowledged their farewells.

With security forces in complete control of the strip-roads, the journey to the scene where the telepath was first detected was soon accomplished. Girvan and Marks were soon shaking hands with Captain Lane.

"Glad to have you with us," greeted Lane, "the name's Lane, by the way, Regan Lane. You're Doctor Girvan and Doctor Marks?"

Marks nodded. "Yes, this is Hedda Girvan and I'm Bill Marks. Has Summers issued orders to capture the 'path alive?"

Lane looked surprised. "The usual orders, suspect to be taken alive if possible but if otherwise . . ." He shrugged his shoulders.

"The situation is more important than simply that," answered Marks. He proceeded to detail the desirability of catching the telepath alive.

"I see," said Lane, "and I agree. But—I am not issuing special orders! For this reason: the 'path may know of your arguments by now and I am not letting him think that my men will give him soft treatment. If he acts rough he'll know what to expect. If he was to think he could get away with anything he'd be even more difficult to take."

"We appreciate that," acknowledged Girvan. "In fact, we'll be frank

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with you. I think that he will be difficult. He may go to the limit to evade capture—just to spite us! What we suggest is that sleep gas is used, in spite of the general inconvenience which will be caused."

"We can do that. But you know that the gas is not very effective in the open?" exclaimed Lane. He turned to a fellow officer who was rigged out with the harness of a portable radio, and spoke briskly with him.

Lane turned back to Girvan and Marks. "That's done. What I plan to do is this. When the 'path is sighted he is to be kept in sight and surrounded at a distance. We shall then move in with the gas. We should know soon of his whereabouts for the whole area is surrounded."

"Are there any places in the area," asked Marks, "which he could damage or make his presence felt in a spectacular way?"

Lane dropped his head in thought.

"There are," he said slowly, "not many such places—this is, after all, mainly a residential district."

"We should remember," interposed Girvan, "that his reaction will be vicious and directed against the city as the focus of his frustration."

Lane whirled sharply to one of the group of security men standing in a clustered group around them.

"Give me that map of the district. Ah, this ought to reveal something." He spread the map out before them. "You examine this area—and here—and I will look here," suggested Lane rapidly dividing the map into three sections with a rigid finger. Marks scrutinized the map critically but before he had made much progress Lane gave a shout.

"Here is something—a control point for the strip-roads and first-level subways. If I were out to cause the maximum disturbance that's what I would choose to disrupt. It's merely a block away, too. Come on, we had better get over there."

"Hold on," objected Marks. "The fact that you have chosen this place may cause the 'path to leave it alone?"

"Not necessarily," asserted Girvan, "he is probably too occupied to worry about our thoughts."

"Not only that," followed up Lane, "it is well within our cordon, and unguarded, since my men will not have reached it. Come on."

With Lane and the two scientists in the forefront, the group of men pounded along the sideway, jumping quickly onto the strip road moving

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in the direction of the communication centre. These were situated in a regular pattern throughout the city, their primary function being that of a check point in the event of a local breakdown. Disorganisation of the first level subways particularly could easily lead to self-propagating chaos.

The procession halted temporarily in front of the communications centre. Lane dispatching one of the security men around each side of the block of buildings, before striding into the main entrance. Girvan and Marks crowded in with the others to discover Lane closely questioning a woman who was still clutching a pen in one hand and obviously startled at the sudden intrusion.

Lane abruptly turned from her.

"There's only one other entrance," he said, and pointing to a security man, added, "this woman will show you where it is. Detain anyone who tries to enter or leave." The man acknowledged the order and trailed after the woman clerk.

"Now we're here we may as well run through the whole building," Lane further announced.

The security men spread out and conducted the search with practised efficiency, working slowly upwards, storey by storey. Reaching the fourth floor Marks happened to look out of an open window. A sizable crowd of people had collected in the street below, forming into small groups and many staring up at the building. Marks bobbed back as a gentle murmur arose and a succession of faces began to upturn in his direction. He exchanged a wry smile with Girvan as they mounted the stairway to the next floor. They had partially ascended the stairs when a stifled yelp reached their ears. Quickening their pace they found a security man sprawled across the threshold of a room.

Marks dropped onto one knee to examine the man.

"He has been struck on the side of the head," he exclaimed. "By the 'path most likely. He must have been lying in wait for the man to enter this room. Hey, come back—the man's dangerous."

But Girvan paid no heed as she began to climb the flight of stairs to the next floor, taking the steps two at a time. Somewhat incoherently she made an attempt to transmit to the telepath. *We mean no harm—help us—you can be of great help to us.*

Her thoughts raced as she sought to quell the fears of the telepath.

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Pausing for breath at the head of the stairs she groaned inwardly as the superfluous thought welled up unbidden in her mind—whether she should think in words or in images. Her mind was suddenly convulsed by a nauseating wave of hate. She retched involuntarily, slumping forward as the muscles of her legs went limp.

"Hedda what is the matter?" cried Marks reaching her side.

"The 'path—he is here—he has reached me mentally," winced Girvan, "it is awful—loathsome . . ." She collapsed, prostrating herself on the floor, in a renewed fit of retching.

"What's happening?" demanded Lane, arriving on the scene.

"Hedda claims to be affected by the 'path," gritted Marks.

"But I can't feel anything!" challenged Lane.

"Maybe not, but neither can I," shot back Marks. "She must be sensitive to the 'path. An emphatic reaction," he went on as his scientific training asserted itself, "due to the closeness of the 'path and his mental state."

Lane looked incredulously at Marks. "What now?"

"After the 'path," replied Marks, seeing that Girvan was being expertly tended by an officer. "How high is this building?"

"Not very high. About seven stories from what I can remember from the street."

The search continued more cautiously and more grimly than before for the men were riled at events. The seventh floor was reached with no sign of the telepath. Marks became conscious of a rising murmur from the crowd outside.

He caught Lane by the arm.

"Will there be a fire escape apparatus on the roof?"

"I don't know." Lane swore. "There is sure to be an escape of some sort. Where is the door to the roof?"

A shout from one of Lane's men sent them both racing to the end of a corridor, where a door opened out onto a flat roof. Lane sidled up to the door to peer round the edge.

"There he is," he yelled, bounding out of the doorway and unholstering his stun-gun in a swift movement.

Marks scrambled hastily after Lane to see a dishevelled man struggling with the fireladder. The ladder was an extending type opening onto a shallow arc for spanning to adjacent roofs. The telepath was frantically

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trying to extend the final section to reach the adjoining roof.

"Stop that," commanded Lane. "Come back here."

The telepath paused in his endeavours, balancing himself precariously as he faced Marks and Lane. His face was contorted and he gesticulated threateningly.

Lane slowly approached the ladder, his gun aimed steadily on the telepath.

"I can't shoot without him falling," he muttered to Marks, and raising his voice he repeated his demand to the telepath.

The man only snarled, shaking his fist and renewing his attempts to free the jammed mechanism. Marks reached the low parapet surrounding the roof and peeped over. The street below was packed with people watching the efforts of the man on the ladder. At that moment, the man slipped and the gasp of consternation from the crowd could almost be felt. The effect on the man was immediate. He cried out as if from physical pain and clutched his head. Reeling drunkenly he toppled from the fire ladder, his last utterance fading to a thin shriek. Marks looked down, feeling sickened, as far below a small white circle of pavement in the midst of the crowd slowly enlarged to reveal a crumpled figure at its centre.

FRED BROWN ON LP RECORD

Frederic Brown, author of more than two hundred short stories and more than two dozen novels received a belated and thoroughly justified tribute as we were going to press, as Warner Brothers Records issued an LP record, "INTROSPECTION IV", which contains many of Brown's most celebrated stories, read by Johnny Gunn (who insists that he has lived in more cities than Brown has books), to the cool-but-eerie background provided by the modern jazz arrangements of Don Ralke.

According to Brown, who was far from the scene of the recording and, admittedly, a bit apprehensive about the result, "I was afraid stories about Vampires trying to extract blood from turnips might not be quite palatable, especially when the listener comes to the record unprepared. Admittedly, I might be prejudiced, but I found myself entranced by the recording, especially by the new readings and way out music. But I can't help thinking this album will not be healthy fare for the timid-of-heart."

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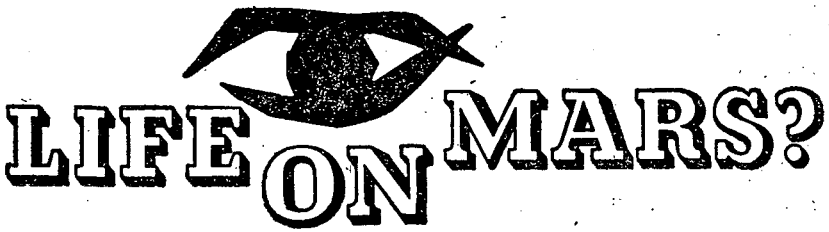

by KENNETH JOHNS

During 1957 the news was released that life is not only a possibility but almost a certainty on the Red Planet. The first signs of extra-terrestrial life have been confirmed.

Dr. William Sinton has told of his experiments at the opposition with Mars of 1956, experiments that resulted in the detection of infrared absorption lines in sunlight reflected from Mars. And the absorption lines are typical of organic matter.

Using a sixty-one-inch telescope and an extremely sensitive infrared cell, he kept watch night after night as Mars closed in on Earth, hoping to find the lines that he had already established as present in the light reflected from terrestrial plant life such as leaves and lichens.

His success means a number of milestones have been passed in the history of astronomy. Life—real life—at last on Mars! And, into the bargain, the first factual knowledge we have that life does exist in the cosmos outside our own world. Astronomers must be forcibly reminded of those famous absorption bands which once positively proved that chlorophyll existed on the giant planets, only to have later workers show the true sources. That line in the spectrogram showed chlorophyll

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on the four outer giants, being strongest on Neptune, and the obvious answer was a form of life that floated in the atmosphere: aerial plankton!

Then, when the true temperatures of the giants was established, those chlorophyll lines, looked at again, turned into absorption lines of ammonia and methane.

And it is only quite recently that these, in turn, have been proved to be only traces in an atmosphere of hydrogen and helium . . .

Dr. Sinton's success also means that the life he has discovered must be there now, for any long-dead vegetation would have been covered by the great dust storms that range over the Martian surface and on the latest conjunction interfered drastically with most of the astronomical photographs and observations made in that critical close period.

The results are not entirely unexpected, for no scientist was prepared to say that there could not be life on Mars—just as few were prepared to agree that it was a certainty.

However, carbon-hydrogen life forms are known on Earth which could colonise Mars successfully. This in spite of an environment equivalent to an earthly altitude of ten miles, and with far less oxygen available on Mars than is found at that height above Earth.

In 1935, bacteria collected at a height of thirteen miles by the balloon Explorer II were found to thrive when warmed. Whilst the limit for warm-blooded life is found at an altitude of about six miles, the limit for cold-blooded animals extends to fifteen miles and lichens can continue to grow at a pressure equivalent to that found at twenty miles high.

Some forms of terrestrial life become latent and can shut up shop and withstand temperatures down probably to absolute zero; but all have to be within the temperature range lying between minus 5 degrees Centigrade and 100 degrees in order to be able to grow. This range is found in a 75 million mile zone around the Sun and includes the planets, Venus, Earth and Mars.

Lichens are the toughest form of plant life and in themselves are a prime example of the fascination of nature's methods. Each is a dual organism, being a symbiosis of a fungus and an alga. The fungus provides a blanket against cold and the loss of moisture whilst the alga

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utilises photosynthesis to form oxygen and create organic compounds. Normally they are very slow growing and when they reproduce, which they do vegetatively, filaments of the fungus break off. If these filaments contain algae then a lichen will result; if they do not, then the fungus dies. Lichens are known to grow on otherwise sterile lava on the slopes of mountains and are usually the first type of vegetation to occur in the reclamation of devastated land.

With these facts known, it is logical to postulate that, as far as we can now tell, a lichenous type of vegetation would be the most likely found on Mars.

In addition, a considerable portion of the fifty-two-and-a-half million square miles of the surface of Mars would have to be covered by plants to create strong enough absorption lines to be detected across the interplanetary gulf.

Further proof that carbon-based life in its lowliest forms is possible on Mars comes from a series of experiments on Earth. Attempting to duplicate the Martian environment, two scientists of the U.S. Air Force School of Aviation Medicine set up the first out-world chamber upon Earth.

In the chamber they placed soil from a mountain top, dessicated it until it was almost bone-dry, purged out the life-giving oxygen with nitrogen and then pumped the pressure down to a tenth of an atmosphere. This was as near as they could get to known Martian conditions; but they did not rest content with what they had done.

The final Martian simulation came when they alternately froze and warmed it to 21 degrees Centigrade over a series of periods corresponding to the progression of days and nights upon Mars.

No complex terrestrial life could withstand this sort of treatment. The important finding, however, was that the soil continued to teem with Earthly bacteria. They actually multiplied during the warm periods, when there was only 0.2% water present in the soil.

If the current theories of the melting of the wafer-thin polar ice-caps and the subsequent seepage of moisture from the poles is correct, based on the colour changes that occur on Mars, then there is sufficient water available for this type of life. Maybe that life is lichenous in type. And, on Earth in the arctic regions, lichens are an important

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item of food. Maybe, on Mars, they are food, too.

But food for what we cannot at the moment tell.

Starting with simple bacteria, there is no earthly (or Martian) reason why higher forms of life should not evolve from such humble beginnings and multiply in the environment of Mars.

We know from Terrestrial study that forms of life do not usually occur in a solitary state; life moves in chains. Where there is plankton in the seas it becomes inevitable that there will be fish; where there is succulent grazing then there will be herds of herbivores.

What Dr. Sinton has done with his discovery is to point out to us one link in such a chain. His absorption lines show that organic matter exists upon Mars.

Whether it be lichens or bacteria—or some *other* form of life of which we can have no conception—this means that the great dust storms that roil across the dead sea bottoms do not lash an empty and lifeless land.

FIFTH ANNUAL MILFORD CONFERENCE

The Fifth Annual Milford Science Fiction Writers Conference will be held in mid-June. The conference lasts a week, and is open to all *professional* science-fiction writers. For further details, write to either Damon Knight or Judith Merril, Milford, Pike County, Pa.

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PITTSBURGH WORLD SCIENCE FICTION CONVENTION

The Pittcon's Committee's plans for this Fall's 18th World Science Fiction Convention to be held at the Penn-Sheraton in Pittsburgh over Labor Day Weekend are increasingly interesting.

James Blish, winner of the 1959 "Hugo" award for his novel, A CASE OF CONSCIENCE, will be Guest of Honor. Isaac Asimov, Sam Moskowitz and many others will be on the program.

Send in your membership *tonight*—$2.00 in this country, $1.00 if overseas—to PITTCON, c/o Dirce S. Archer, 145 Barnsdale Street, Pittsburgh 17, Pa. Make your checks payable to P. Schuyler Miller, Treasurer, *or* 18th World Science Fiction Convention Committee.

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ALMOST OBSOLETE

by DONALD MALCOLM

Almost anything in the world can be reduced to a matter of statistics. The cold, cruel figures hold in a mathematical prison all that is warm, natural, human, personal, matter of fact. Want to know the yearly consumption of shoes, tomatoes, newspapers, nappies, hairpins, bandages, needles, teaspoons, nailfiles—in fact, all the trivia that help to mould a pile of chemicals into a human being? You'll find them somewhere, in someone's filing cabinet. The sum total of the phenomenon called life.

Gerald Kemp had a filing cabinet full of statistical records; to be more accurate, he had three roomfuls of them, the medical variety. They dealt with all manner of things pertaining to the human body.

He was Chief Statistician in charge of Medical Records, arbitrarily attached to one of the larger London hospitals, but his work encompassed a much larger field of activity. He could quote figures to the B.M.A., to the Government of the day, to insurance firms, to anybody with a legal use for medical statistics.

Kemp's work led him to take up a wide and varied number of interests in his leisure time. Through this, he had probably a deeper insight into the personalities, foibles and motives of people than most.

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The mere recording of statistics was routine; the correlation and interpretation of the amassed figures was more demanding, requiring an intuitive bent for spotting the unusual.

Individual groups of statistics seldom tell much beyond the subject they are concerned with.

But when certain, apparently unconnected facts are brought together, a picture appears, not always a pleasant one . . .

The abstract rang a bell in Kemp's acute, neatly-partitioned mind. It had been taken from a recent paper in the B.M.A. *Journal* and bore the title, RISE IN THE INCIDENCE OF MALE STERILITY.

He called in his secretary.

"Miss Thane," he began, showing her the abstract, "I take it this doctor had access to our files for this work?"

"Yes, sir. He came here often."

She blushed faintly and Kemp remembered that his attractive secretary had more to do with the visits than the files.

"How is he, by the way?" he asked, grinning impishly.

The girl blushed even more.

"Very well, thank you."

Still grinning, Kemp sighed, "Back to business, Miss Thane." Actually, his mind never left it.

He went on. "Ask Wilson to see what he can dig up on female sterility, will you?" Referring to the sheets, he added, "Back to 1958 please. Twenty years; the young man has certainly been diligent, hasn't he?"

Miss Thane was now crimson and fast disappearing into the infra-red and Kemp guessed that a deeper romance was in the offing.

After she had left, Kemp settled down to study the abstract in closer detail. Male sterility had been rising steadily since 1958 with one or two standstills during the period. No dips, though. He read through the lists of causes, those ascertained, those possible, those probable. According to the doctor, the British male was in a bad way, but the outlook was bright.

When Miss Thane returned with the information, he instructed her to ferret out details of sterility at birth and due to disease, accident and so forth in later life.

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The female sterility figures proved to be extremely interesting and not a little puzzling. In 1958 the ratio of sterile males to their similarly afflicted counterparts was about 2 to 3. The 40 per cent male figure had been rising while the incidence of female sterility was dipping, if anything more steeply. The percentage of males to females reporting at the clinics for help was now something like 63 per cent to 27 per cent, an amazing turn about. Kemp wondered how many people were suffering their inability in silence.

Miss Thane brought in the birth figures. Examination showed that more male than female children were afflicted with *incurable* sterility at birth. Although the percentage was higher and probably rising, it was not quite so disproportionate as the adult figures.

Kemp felt intensely sure that these trends were only part of a large picture that might not bear looking at. However, he was not a man to flinch and, no matter how big the tiger on the end of the tail he had picked up, he had to go on. That he knew; his "nose" for such things wouldn't let him stop now.

His cup of morning tea, with nothing but a generous slice of lemon in it, was sent in. As he sipped it critically, he summarised the items that had emerged from the morning's ferreting.

One: male sterility stood at all-time high.

Two: females were, correspondingly, in better shape than they had been since the fig-leaf state.

Three: more sterile male babies—incurably so.

Four: what did items one, two and three add up to?

He had to confess that, for the present, he was baffled.

Pushing the matter into a pending compartment of his mind, he turned his attention to things of more immediate importance.

A phone jangled.

"Kemp here."

"Jim Moffat, Manager of South Africa Insurance Company. We are revising the premiums for men in the fifty-and-over age group. Can you supply us with the latest life expectancy statistics please?"

"Yes, we can let you have them," Kemp told him, knocking the piece of lemon about in his cup with a spoon.

"If you send a messenger along after lunch, say, at three, he can pick

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them up. He'll be able to bring the usual confirmatory letter."

They exchanged thank you's and goodbyes, then Kemp hung up.

He called Miss Thane in.

"Male-life expectancy after the age of fifty this time," he informed her between sips of his cooling tea. "Seeing that Wilson's eye is in, so to speak, give this request to him," Kemp instructed, passing over the form he had filled in as he spoke.

As she turned to leave, he remarked airily, "Ah—Miss Thane—statistics reveal that Russian tea imbibers incline more to two cups than one . . . is there any more in the pot?"

"I can hardly argue with a brilliant statistician like yourself, can I?" she bantered, returning with the pot and doing the honours.

He worked steadily, without interruption, until lunch. This he ate at his leisure, then had a walk in the sun-lit park before choosing a bench and settling down to read his newspaper.

One finds many interesting items of information tucked away in small corners of papers, rating, at most, a couple of lines of print. Because of his profession, Kemp tended to notice such minor details.

This one said.

"The effects of the influx of more women into industry on the falling marriage rate are being investigated"—*answer to question in the House of Commons.*

Falling marriage rate . . . in his mind, another seemly isolated fact clicked into place. He had no clue yet as to the final picture that was going to result when other so far unknown factors turned up and took their places.

He consulted his watch, saw that it was time to return to the office—he was a stickler for punctuality—and pushed the paper into a pocket. Kemp sensed that the larger, by far more important aspects of his jigsaw were still to come.

Rising, he stretched, then walked slowly to the park entrance, wondering what the world was planning behind the collective back of humanity.

Kemp put a pile of work behind him before it was time to go home. He dropped Miss Thane off at her house then drove out to his suburban

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bungalow, where he lived with his wife and family, one boy, one girl.

All during the drive his mind churned over the odd facts that had, in one way or another, claimed his attention that day. The impersonal statistics built up to something.

What?

He tuned in the car radio and caught the tail end of a report on the Commonwealth Jupiter Expedition. The public imagination was certainly stimulated by the progress of the three ships. Within two or three weeks they would reach the region of the giant world and once again the search for other intelligent life in the system would begin.

The seekers had found nothing to enthuse over on the Moon, on Venus or on Mars.

In most people's private opinion, the chances of finding life, let alone intelligent life, on the satellites of the outer planets were slim.

But the papers and other news fronts sustained the interest and the hope that aliens might exist somewhere out there in the wastes of the interplanetary night.

By the time he finally reached home he was again thinking about the problem. He ate his evening meal with a pre-occupation that evoked comment from his wife. He was usually more appreciative of his wife's excellent cooking. He did his best to explain, merely increasing his own feelings of bafflement and bewilderment and giving Ingrid something to puzzle over.

Later, when the children were safely abed and Mrs. Kemp had gone to visit a sick relative, he settled down to watch a fortnightly programme, THE WORLD OF MEDICINE. The first part dealt with new analgesics that had been developed recently.

Then the interviewer announced, 'Now we have with us Dr. Robert Milton, a world-renowned pediatrician, who is attached to one of our London hospitals. He's going to tell us about some new work he's been doing in connection with babies, a subject that interests us all. Dr. Milton.'

Kemp perked up. He knew Milton, as, indeed, he knew most of the medical fraternity in the Capital. Milton was a small, deceptively mild person with a gentle nature that helped considerably in his profession.

In a soft voice, perfectly matched to his personality, he began. "Much of the research I have been doing recently has been in connection with

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newly-born babies in an effort to aid the dieticians in their search for the perfectly balanced diet for the expectant mother."

Milton was a "natural" for the television medium and Kemp found his attention held.

The speaker went on, "We are striving to find such a diet so that many of the ills that attack and too often cripple children in their important formative years may be banished. Incidentally," he digressed, smiling at the interviewer, "this line of research might do me out of a job eventually!"

Very neat juxtaposition, Kemp noted mentally.

"Can you tell us something of the importance of diet, Dr. Milton?"

"Yes, as spokesman for our team, I can. The importance of a correctly balanced diet, cannot be overstressed. The foetal child is in the most helpless stage of its life. It depends for its sustenance on its mother. While some defects are hereditary, the mother is directly responsible for the physical condition of her child at birth. Pre-natal education has never been at a higher level that it is to-day. In consequence the health of our children in the age group of birth to five years is satisfactorily better. To conclude this part, there is no excuse for the woman who fails to take advantage of the range of free vitamins available."

The interviewer commented, "I believe that, in research of any kind, interesting facts, which have no direct bearing on the main line, turn up. Have you found this to be the case?"

Dr. Milton nodded. "Two unusual items have been uncovered. The first one might have its origins in the diet; we are not sure at this point. A major difference in the bone structures of males and females is to be found in the joint of the thigh bone and the hip bone."

Here a set of two X-ray plates and a pair of line drawings were shown. Using a small pointer Dr. Milton indicated a plate and a drawing.

"Here and here you see the female structure. Note the markedly angled joint of the bones. On the other hand"—he stabbed at the male plate and the drawing— "the joint here shows very little angle, almost a straight line."

Laying the pointer down on the table, he remarked, "Incidentally, the pronounced angle seen on the female plate is the reason why a woman—"

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Abruptly, the sound cut off. The doctor continued mouthing, then Kemp saw the two men obviously, but soundlessly laughing.

Milton began to speak again and Kemp cursed the breakdown.

". . . discovered this. Many of the young female babies I have examined show little or no angle between the hip bone and the thighbone.

"The second item deals with the sex of the children. Women between twenty and twenty-four produce more boys than girls; After this age, the trend reverses. In our research, we have found that the twenty-to-twenty-four age group has produced more *girls*. Whether or not this trend is country-wide has yet to be established."

I can soon check that one, Kemp said to himself as the interviewer thanked the doctor, counselled viewers to look in again in two weeks and the programme faded from the screen.

Two more factors for the jigsaw! A change in female bone structure and a rise in the number of girls born to mothers in the twenty to twenty-four age bracket. He'd check up the available statistics on that one to-morrow.

One thing was emerging from the data he had. The changes were without exception favouring the weaker sex.

He went to bed, wondering about the bit he had missed.

Next day, he had Wilson run some data through the computer. The results confirmed that the unusual reversal of trend as highlighted by Dr. Milton's research applied to the whole country. The change was, admitted, not a large one, but it *was* significant.

Kemp was worried and he couldn't shake the feeling off. Somewhere, something big was stirring, shapelessly, purposefully.

He decided to get in touch with his friend Luis Ramirez, the Director of the World Health Organisation, at his HQ in Rio. His medical statistical vaults made Kemp's collection look like a train-spotter's notebook. All medical statistics, from every part of the world, were sent there for correlation and integration into a world map of disease and sickness. In this way, trends were spotted before they became really dangerous and the highly trained specialist teams could be rushed to a given area where they had plenty of time to organise an effective and lasting counter-attack. With travel at twice the speed of sound commonplace, distance presented no difficulty to the W.H.O. air fleet.

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Ramirez had at his well manicured finger tips all available data from the high density population areas. The British Isles, with a slowly declining population level, was a mere irritation beside places like China, Africa, India, Russia and America.

Anything unusual was bound to show up. His statistics would give Luis a starting point, show him what to look for.

Carefully, he composed a letter, giving the various facts as concisely as possible. At lunch, he took the letter to the Post Office where he registered it and affixed the new stamp issued that day. A 1/9d air value in black on blue, it depected Britain's latest Mach Two jetliner, *Nova Stella*. Luis was a famous collector and he would be pleased to have this cover as an extra to the special one Kemp posted at the same time. The stamp was the first issued by Britain since the set of two put out in 1960 in commemoration of a British satellite launching.

Seven days passed. The work went on. Kemp attended a couple of conferences and was, if anything, busier than usual. He had three weeks leave due shortly and wanted no loose ends dangling.

Within ten days, a cable arrived from Rio:

URGENT YOU COME HERE STOP HAVE CABLED BENARIO DHUMAL KUKARKIN N'BOYA AND CHOU STOP ADVISE STOP.
RAMIREZ.

Well, Kemp thought, reading the cable, his letter must have stirred things up!

He had four days in which to make the necessary arrangements. He cabled Ramirez, advising him of his date and time of arrival at Rio's beautiful air terminal.

Kemp left the other holiday arrangements in his wife's capable hands —he didn't expect to be detained long in the Brazilian capital—and boarded a South American *Nova Stella* for Rio.

As the plane took the air with thundering grace, his thoughts turned to the others, either starting out for or on the way to W.H.O. H. Q., in Rio.

Benario hadn't far to travel from Washington, but the others had a considerable distance to cover.

Dhumal from Delhi; N'Boya from Salisbury; Kukarkin from Moscow and Miss Yi-Hsin from Peking. All were personal friends of his. In fact

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the coming meeting would be like a minor Royal Statistical Society get together.

Absently, he glanced at one of the shapely stewardesses as she walked away from him. Of course— He knew now what he had missed on the television programme.

His glance wandered to the window and broad expanse of the Atlantic far below. The jetliner cruised effortlessly onwards.

Rio had changed, as any city changes with time. He had last been there in 1961. The change was not simply the physical one of the old buildings gone and the new structures in their places. It was more deep, more subtle than that, as if the city reflected the growing wealth, importance and status of Brazil as a world power. Vast tracts of the timeless Amazon area had been cleared to reveal a fortune in minerals, which the planet badly needed.

Luis was waiting for him at the plush, now unrecogniseable Rio air terminal. The whole effect was decidedly futuristic.

"Gerald!" Ramirez greeted him affectionately, gripping his hand firmly. "Good to see you, again."

"And you, Luis," Kemp responded, as they walked across the tarmac to the Customs Reception.

"You had a good journey?" the Director asked when they had left the building and settled down in a car.

"Fine, fine." He grimaced. "But I'm old fashioned, I guess. I like to keep my feet on the ground."

They smiled.

Kemp could see that Luis, though he was dapper and immaculate as always, was agitated. His dark, thin features kept twitching, a sure sign.

"Have the others arrived?"

"They are all here, at my office."

"It will be good to see them all again."

"Yes; were our respective countries as friendly as we are things would be much better to-day."

The conversation lagged and they finished the journey in silence.

There was much back-slapping and hand-shaking when they entered Ramirez' office. Kemp reserved a special greeting for Chou Yi-Hsin. Her father had been his close friend.

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"I have called you all here for a very good reason," Ramirez began, after they were comfortably settled in their chairs. "Gerald sent me some interesting statistics applicable to the United Kingdom and asked me to find out if similar trends exist in the large population areas. If they exist—and they *do*—he asked me to give the problem to the computers at W.H.O. H.Q."

He cleared his throat and gestured to the reports in front of them.

"These give the bare figures. Before we discuss the significance of the computers' findings, I'd like each of you—excepting Gerald—to give a brief refresher on the background."

"Chou," he invited the Chinese girl, "will you start off?"

"China is a Communist country. Consequently, the Government keeps a very firm finger on the pulse of all that happens." She had only a slight accent to her clear voice and the men found her pleasant to listen to as well as to look at.

"The leaders are in something akin to panic. The population is not rising as fast as it did. That is good. An unwieldy population becomes hard to feed and clothe. Therefore, it becomes disgruntled and rebellious."

She paused to dab at her nose with a delicately perfumed lace handkerchief. All her gestures were graceful.

Chou continued, "But less boys are now being born and this worries the Reds. A bonus is paid to every family which produces a boy. Also, much genetic tampering had been encouraged in an attempt to adjust the adverse ratio of girls to boys."

Her slender fingers tightened on the lace as she said, "The geneticists failed, Professor Wang now labours in the fields." A bit more brightly, she added, "Arrangements are in hand to smuggle him out of China."

"A last point, life expectancy for Chinese males is beginning to level off."

"Thank you, Chou." Ramirez looked round the group. He nodded at Benario. "Robert, you next, please."

The American was a burly six-footer, balding, quietly dressed, with a voice well used to public speaking.

"Mind if I smoke, Chou?"

The girl inclined her sleek head by way of permission and Benario

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lit up. Of the others, only Igor smoked, but never indoors.

"Like China, the American population rise is not so marked," he said, drawing contentedly on his cigarette. "The tide of teen-age weddings has ebbed finally. More people are marrying after the age of twenty. In the twenty to twenty-four age group, more girls than normal are being born and after twenty-four an increase of female babies has been noted. Lastly male sterility figures are rising, but female figures still hold the balance."

He tapped ash off his cigarette as Luis thanked him and nominated Igor to speak next.

The Russian was built like a benign grizzly bear and had a voice to match. "I have very little to add to Robert's statement except that we never had so many child-unions as his country!" His eyes twinkled as the others, the American included, laughed at his unmalicious dig.

"One thing, though," He was serious again. "There was a rumoured parthenogenetic birth in Moscow. A sailor's wife was pregnant despite his eleven month absence. She attested it was a virgin birth. A girl."

Click. The pitcure in Kemp's mind suddenly assumed a definite shape. He could hardly contain himself. But he cooled down, withdrew his attention from the conversation and thought hard.

Luis spoke up. "I included that factor in the data processed for the computors." He turned to Benario. "Didn't you hear about the Ellerman girl, Robert?"

The American shook his head.

Luis pressed his tongue between his lips. "I did hear it privately, so please say nothing. The examining doctor was certain that the girl had never experienced intercourse. She had a girl."

Livingstone N'Boya just beat Vishmu Dhumal into the conversation.

"I've come across a number of stories concerning virgin birth. Africa is, in some parts, still as dark as it was in the time of the man who gave me my Christian name. These stories filter in by a thousand devious routes. Who is to check them? It is difficult." His beautiful teeth flashed a white smile in his almost black face.

Dhumal, the Indian, corroborated his African colleague's remarks. His left eye ticked continually as he commented. "I, too, have heard such tales, Livingstone." He twirled a pinkie ring as he talked and the

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diamond sharded with hard colour. "But it is virtually impossible to substantiate such cases, to separate the fact from the fantasy. Medical statistical work in India, and in Africa, too, I suppose, is thankless grind." He raised his hands, off white palms upward.

"The number of births we never hear of is legion. We can make intelligent guesses, that is all."

His coffee coloured handsome face assumed a resigned expression.

Chou, who had been toying with the piece of provocative lace, stretched her lissome figure. "In China, some things *can* be hidden from the supposedly all-seeing eyes. Virgin birth could be one of them. We Chinese are a philosophical people and we still value the sanctity of family above all else."

Luis pressed a button and Kemp, who had been only half-listening, returned from his thoughts, now crystallized. The picture frightened him.

The Director's secretary came in with drinks and some newspapers. Kemp looked at his steaming tea with the large slice of bright lemon and glanced up to find Luis smiling widely.

He tapped a finger at his brow. "You see, Gerald, I remembered!"

Then Gerald's eyes were on the girl as she departed.

"Look," he said, "do you know why she swings her hips?"

Seven pairs of eyes followed the sway.

The girl interposed over her shoulder, "Because the men like it, Mr. Kemp."

Kemp shook his head, grinning.

"No; it is because your thigh bones join your hip bones at an angle. You can't help it."

She shrugged pleasantly. "Perhaps Nature had men in mind when she designed us," she observed with gentle satire.

"What interpretation do you place on the computer results, Luis?" Chou enquired.

Kemp was endeavouring to translate a newspaper headline. His command of the language was enough to tell him that the Commonwealth Jupiter Expedition had found no alien life on the Jovian moons. He smiled grimly.

"I must confess I'm at a loss, Chou. The computers say that *all* the

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trends we have discussed will continue. I can only state the obvious; something is happening and it seems to favour women."

Igor rumbled, "More information is probably needed before anything definite emerges. I feel sure of this, though. Quite a few generations will pass before things reach their culmination, whatever that may be." He fingered his pipe thoughtfully.

"I think I know what is happening," Kemp told them, holding up a newspaper.

"What does the headline say, Luis?"

"No life on Jovian Moons."

"Right," Kemp laid the paper down on the table.

"For many years we have speculated about alien life on the other planets, both of our Solar System and of other stars. And all the time the aliens are here among us."

"What does that mean?" Luis' voice was perhaps sharper than he meant it to be. The others listened intently.

"I think we are witnessing the beginning of the bifurcation of the human race. Men are in the process of becoming aliens on their own planet. Mother Nature feels it is time for a change."

"It seems incredible!" Livingstone exclaimed, a slight strain in his voice.

"Does it? Women have always been the more dominant species, longer lived, more durable, less prone to killer diseases and worries. Now she is coming into her own. Some time in the future, a woman will not need a man. She will be even more capable of looking after herself and will conceive her own children by virgin birth. She won't have to swing her hips any more. Mankind is obsolete, on this planet at least."

Chou commented quietly, "Everything does seem to point that way."

Dhumal, who had risen and was standing behind his chair, suggested, "Shouldn't we tell our governments?"

Kemp's reply was faintly derisive. "Why? Governments can do many things, but they can't stop evolution."

"If your idea is true, it means the end of the race of man.

Kemp looked keenly at Igor. It had grown quite dim in the room. A sprinkling of stars could be seen twinkling through the windows, with tropical softness.

"No!" He surprised himself with the force of his denial. He stood

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up, walked to the window.

"The race of man is only *beginning*, my friend. Nature would not spend a million years shaping an intellect only to throw it away carelessly." He gestured to the night. "So far, man has found no life in our tiny system; I do not believe he will find any. But out there, a myriad suns burn and life abounds. Man's destiny is among the stars."

He smiled as a thought crossed his mind. "Anyway, hasn't the woman always stayed at home while the man roved? Only, he has the Universe at his disposal, now."

Chou surveyed the six aliens. Slowly, they returned her smile.

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FANNOTATIONS

by BELLE C. DIETZ

Those of you who have been regular readers of SF magazines will have discovered that science fiction fans like to get together and hold conventions, at which they get acquainted, listen to speakers, buy sf books, mags and artwork and, in general, hobnob with kindred spirits. Unselfish in their enjoyment, they have set up an organization to share their good times with a fan from across the Atlantic. This was named the "Trans-Atlantic Fan Fund" or TAFF. In alternate years, provided there are enough funds on hand, a British or European fan is brought across to the U.S. Worldcon and an American fan is sent to England for one of their conventions. It is conducted as an election: Candidates are proposed to run for TAFF and the money for fare is raised by having sf fans vote for the candidate of their choice and contribute at least 50¢ with their ballots. There are eligibility requirements for voters so that unfair advantage may not be taken by a candidate with a wide non-sf fan acquaintance, but even so, this is a really worthy *science fiction* cause to which to donate. I urge my readers to write to me in care of this magazine to obtain TAFF ballots so that in September a British fan may be enabled to cross the Big Pond and attend the Pittsburgh Worldcon.

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And now back to the amateur publishing facet of sf fandom.

THE DIRECTORY OF 1959 SF FANDOM (Ron Bennett, 7 Southway, Arthurs Ave., Harrogate, Yorkshire, Eng.) lists the names, addresses and phone numbers of most of the active sf fans, together with tape speeds (if they own tape-recorders) to facilitate voice correspondence. A very useful work, neat and legible and well worth its 25¢ price-tag.

SCIENCE-FICTION TIMES #329 (S-F Times, Inc., P.O. Box 115, Solvay Branch, Syracuse 9, N. Y.) is a newszine which keeps you up to date on the latest pro and fan happenings in the sf microcosm. It has been published regularly for 18 years and has a wide, devoted readership. This issue contains a section about the first sf pulp magazine which was published in 1929, written as though it were happening currently, with a guest editorial by Sam Moskowitz. Through its classified ads can be located a variety of sf and fantasy books, back issue mags, etc., and this twice-monthly zine constitutes a really good buy at 10¢ per issue or $2.40 per year. Highly recommended.

APORRHETA #14 (Sandy Sanderson, "Inchmery," 236 Queens Rd., New Cross, London SE 14, Eng.) is one of the finest monthly fanzines published today. Contents this time include comments on radioactive fall-out (Dr. Paul Hammet); on current scientists (William F. Temple); some wryly amusing take-offs on Mother Goose ("Cursery Rhymes for Blown-Ups" by Sid Birchby); a very funny and sophisticated article by Harry Warner Jr.; the usual excellent columns ("The L'il Pitcher" by Joy Clarke; "The Old Mill Stream" by Penelope Fandergast) and Aporrheta's most famous feature—its letter column. This last is entitled "Inchmery Fan Dairy," is edited by Sandy and if you like peeping in on the lives of interesting people you'll enjoy the Diary. Sandy, by the way, is running in the current TAFF election and he is my choice of candidates. Besides being an excellent writer who has given much pleasure to his readers with 14 fifty-page (so far) issues of Aporrheta, he is a wonderful person and would make a very good representative of British sf fandom at the Pittsburgh convention over the Labor Day weekend. As far as I'm concerned, it's Sandy Sanderson for TAFF! And try Aporrheta at 20¢ each or 6 for $1.

EXCONN #6 (Robert N. Lambeck, 868 Helston Rd., Birmingham, Mich.) is back again with a vivid cherry-red cover, vastly improved mimeographing and artwork. This contains quite a bit of fan-written

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science fiction, some good poetry and an excellent letter column. The story by Len Moffatt was, in my opinion, of professional quality. Very much worth 10¢ apiece.

EUSTACE #1 (Mike Moorcock, 30 Benhill Wood Rd., Sutton, Surrey, Eng.) is a first issue which does its editor credit. Best of the issue were Sandra Hall's "Don't Call Me Comrade," a brief account of her recent trip to Moscow; the editor's "Soho Interlude," Soho being the London equivalent of Greenwich Village; and George Locke's piece, "Bookworming." The reproduction was only fair to poor in some places, making the artwork suffer as a result. No price quoted but you might send a dime along. Worth watching.

METROFEN #3 (Leslie Gerber, 201 Linden Blvd., Brooklyn 26, N. Y.) This is a club-originated fan magazine but the sponsoring club has dissolved. However, the editor plans to continue it on his own. Reproduction this issue has changed greatly for the better and the contents include good reprint material from old fanzines, the minutes of the next-to-last club meeting; fanzine reviews; a column by Ed Meskys who rather sardonically comments on N. Y. fan happenings; and a very short letter column. Anyone can obtain this for 10¢ per or 3 for 25¢ and I think this youngster (he's 16) deserves encouragement.

CATALYST #1 (Don Studebaker, 7444 83rd Pl., Palmer Pk., Md.) is a rather skimpy first issue containing mostly poetry and an article by George Nims Raybin on sf prozines. The latter is painstakingly done and would have been effective if it had been printed when written (in January 1959) but is completely outdated now. Repro varies from clear to barely legible. This seems to be my let's-encourage-the-young-'uns month so send a dime to this 17-year-old and let's see if we can't get a much better second issue from him.

HOCUS #12 (Mike Deckinger, 85 Locust Ave., Millburn, N. J.) contained some very good material, including a progress report on Arkham House by August Derleth; Rick Sneary's description of a Von Braun lecture and the second half of a Detroit convention report by Bob Lambeck. However, first place was easily won by Art Rapp with his jump-in-the-amateur-publishing-water's-fine article. Although this young editor (19 years) has gradually been bettering his mimeoing, this one still is not what it could be. Hocus sells for 10¢ and the material warrants at least that investment. Recommended.

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WAITING GROUNDS

by J. G. BALLARD

Whether Henry Tallis, my predecessor at Murak Radio Observatory, knew about the Waiting Grounds I can't say. On the whole it seems obvious he must have done, and that the three weeks he spent handing the station over to me—a job which could easily have been done in three days—were merely to give him sufficient time to decide whether or not to tell me about them. Certainly he never did, and the implied judgment against me is one I haven't yet faced up to.

I remember that on the first evening after my arrival at Murak he asked me a question I've been puzzling over ever since.

We were up on the lounge deck of the observatory, looking out at the sand-reefs and fossil cones of the volcano jungle glowing in the false dusk, the great 250-foot steel bowl of the telescope humming faintly in the air above us.

"Tell me, Quaine," Tallis suddenly asked, "where would you like to be when the world ends?"

"I haven't really thought about it," I admitted. "Is there any urgency?"

"Urgency?" Tallis smiled at me thinly, his eyes amiable but assess-

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ing me shrewdly. "Wait until you've been here a little longer."

He had almost finished his last tour at the observatory and I assumed he was referring to the desolation around us which he, after fifteen years, was leaving thanklessly to my entire care. Later, of course, I realized how wrong I was, just as I misjudged the whole of Tallis's closed, complex personality.

He was a lean, ascetic-looking man of about fifty, withheld and moody, as I discovered the moment I debarked from the freighter flying me in to Murak—instead of greeting me at the ramp he sat in the half-track a hundred yards away at the edge of the port, watching silently through dark glasses as I heaved my suitcases across the burning, lava-thick sunlight, legs weary after the massive deceleration, stumbling in the unfamiliar gravity.

The gesture seemed characteristic. Tallis's manner was aloof and sardonic; everything he said had the same deliberately ambiguous overtones, that air of private mystery recluses and extreme introjects assume as a defence. Not that Tallis was in any way pathological—no one could spend fifteen years, even with six-monthly leaves, virtually alone on a remote planetary clinker like Murak without developing a few curious mannerisms. In fact, as I all too soon realized, what was really remarkable about Tallis was the degree to which he had preserved his sanity, not surrendered it.

He listened keenly to the latest news from Earth.

"The first pilotless launchings to Proxima Centauri are scheduled for 2250 . . . the U.N. Assembly at Lake Success have just declared themselves a sovereign state . . . V-R Day celebrations are to be discontinued—you must have heard it all on the radiocasts."

"I haven't got a radio here," Tallis said. "Apart from the one up there, and that's tuned to the big spiral networks in Andromeda. On Murak we listen only to the important news."

I nearly retorted that by the time it reached Murak the news, however important, would be a million years old, but on that first evening I was preoccupied with adjusting myself to an unfamiliar planetary environment—notably a denser atmosphere, slightly higher (1.2 E) gravity, vicious temperature swings from —30° to +160°—and programming new routines to fit myself into Murak's 18-hour day.

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Above all, there was the prospect of two years of near-absolute isolation.

Ten miles from Murak Reef, the planet's only settlement, the observatory was sited among the first hills marking the northern edge of the inert volcano jungle which spread southwards to Murak's equator. It consisted of the giant telescope and a straggling nexus of twenty or thirty asbestos domes which housed the automatic data processing and tracking units, generator and refrigerating plant, and a miscellany of replacement and vehicle stores, workshops and ancillary equipment.

The observatory was self-sufficient as regards electric power and water. On the nearby slopes farms of solar batteries had been planted out in quarter-mile strips, the thousands of cells winking in the sunlight like a field of diamonds, sucking power from the sun to drive the generator dynamos. On another slope, its huge mouth permanently locked into the rock face, a mobile water synthesiser slowly bored its way through the desert crust, mining out oxygen and hydrogen combined into the surface minerals.

"You'll have plenty of spare time on your hands," the Deputy Director of the Astrographic Institute on Ceres had warned me when I initialled the contract. "There's a certain amount of routine maintenance, checking the power feeds to the reflector traverses and the processing units, but otherwise you won't need to touch the telescope. A big digital does the heavy thinking, tapes all the data down in 2000-hour schedules. You fly the cans out with you when you go on leave."

"So apart from shovelling the sand off the doorstep there's virtually nothing for me to do?" I'd commented.

"That's what you're being paid for. Probably not as much as you deserve. Two years will seem a long time, even with three leave intervals. But don't worry about going crazy. You aren't alone on Murak. You'll just be bored. £2000 worth, to be exact. However, you say you have a thesis to write. And you never know, you may like it there. Tallis, the observer you're taking over from, went out in '03 for two years like yourself, and stayed fifteen. He'll show you the ropes. Pleasant fellow, by all accounts, a little whimsical, probably try to pull your leg."

Tallis drove me down to the settlement the first morning to collect my heavy vacuum baggage that had travelled spacehold.

"Murak Reef," he pointed out as the old '95 Chrysler half-track

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churned through the thick luminous ash silted over the metal road. We crossed a system of ancient lava lakes, flat grey discs half a mile wide, their hard crusts blistered and pocked by the countless meteor showers that had driven into Murak during the past million years. In the distance a group of long flat-roofed sheds and three high ore elevators separated themselves from the landscape.

"I suppose they warned you. One supplies depot, a radio terminal and the minerals concession. Latest reliable estimates put the total population at seven."

I stared out at the surrounding desert floor, cracked and tiered by the heat swings into what looked like huge plates of rusted iron, and at the massed cones of the volcano jungle yellowing in the sand haze. It was 4 o'clock local time—early morning—but the temperature was already over 80°. We drove with windows shuttered, sun curtain down, refrigerating unit pumping noisily.

"Must be fun on Saturday night," I commented. "Isn't there anything else?"

"Just the thermal storms, and a mean noon temperature of 160°."

"In the shade?"

Tallis laughed. "Shade? You must have a sense of humour. There isn't any shade on Murak. Don't ever forget it. Half an hour before noon the temperature starts to go up two degrees a minute. If you're caught out in it you'll be putting a match to your own pyre."

Murak reef was a dust hole. In the sheds backing onto the depot the huge ore crushers and conveyors of the extraction plants clanked and slammed. Tallis introduced me to the agent, a morose old man called Pickford, and to two young engineers taking the wraps off a new grader. No one made any attempt at small talk. We nodded briefly, loaded my luggage onto the half-track and left.

"A taciturn bunch," I said. "What are they mining?"

"Tantalum, Columbium, the Rare Earths. A heartbreaking job, the concentrations are barely workable. They're tempted to Murak by fabulous commission rates, but they're lucky if they can even fill their norms."

"You can't be sorry you're leaving. What made you stay here fifteen years?"

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"It would take me fifteen years to tell you," Tallis rejoined. "I like the empty hills and the dead lakes."

I murmured some comment, and aware that I wasn't satisfied he suddenly scooped a handful of grey sand off the seat, held it up and let it sift away through his fingers. "Prime archezoic loam. Pure bedrock. Spit on it and anything might happen. Perhaps you'll understand me if I say I've been waiting for it to rain."

"Will it?"

Tallis nodded. "In about two million years, so someone who came here told me."

He said it with complete seriousness.

During the next few days, as we checked the stores and equipment inventories and ran over the installation together, I began to wonder if Tallis had lost his sense of time. Most men left to themselves for an indefinite period develop some occupational interest: chess or an insoluble dream-game or merely a compulsive wood-whittling. But Tallis, as far as I could see, did nothing. The cabin, a three-storey drum built round a central refrigerating column, was spartan and comfortless. Tallis's only recreation seemed to be staring out at the volcano jungle. This was an almost obsessive activity—all evening and most of the afternoon he would sit up on the lounge deck, gazing out at the hundreds of extinct cones visible from the observatory, their colours running the spectrum from red to violet as the day moved into night.

The first indication of what Tallis was watching for came about a week before he was due to leave. He had crated up his few possessions and we were clearing out one of the small storage domes near the telescope. In the darkness at the back, draped across a pile of old fans, track links and beer coolers, were two pedal-powered refrigerator suits, enormous unwieldy sacks equipped with chest pylons and hand-operated cycle gears.

"Do you ever have to use these?" I asked Tallis, glumly visualising what a generator failure could mean.

He shook his head. "They were left behind by a survey team which did some work out in the volcanos. There's an entire camp lying around in these sheds, in case you ever feel like a weekend on safari."

Tallis was by the door. I moved my flashlight away and was about

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to switch it off when something flickered up at me from the floor. I stepped over the debris, searched about and found a small circular aluminium chest, about two feet across by a foot deep. Mounted on the back was a battery pack, thermostat and temperature selector. It was a typical relic of an expensively mounted expedition, probably a cocktail cabinet or hat box. Embossed in heavy gold lettering on the lid were the initials 'C.F.N.'

Tallis came over from the door.

"What's this?" he asked sharply, adding his flash to mine.

I would have left the case where it lay, but there was something in Tallis's voice, a distinct inflection of annoyance, that made me pick it up and shoulder past into the sunlight.

I cleaned off the dust, Tallis at my shoulder. Keying open the vacuum seals I sprung back the lid. Inside was a small tape recorder, spool racks and a telescopic boom mike that cantilevered three feet up into the air, hovering a few inches from my mouth. It was a magnificent piece of equipment, a single-order job hand-made by a specialist, worth at least £500 apart from the case.

"Beautifully tooled," I remarked to Tallis. I tipped the platform and watched it spring gently. "The air bath is still intact."

I ran my fingers over the range indicator and the selective six-channel reading head. It was even fitted with a sonic trip, a useful device which could be set to trigger at anything from a fly's foot-fall to a walking crane's.

The trip had been set; I wondered what might have strayed across it when I saw that someone had anticipated me. The tape between the spools had been ripped out, so roughly that one spool had been torn off its bearings. The rack was empty, and the two frayed tabs hooked to the spool axles were the only pieces of tape left.

"Somebody was in a hurry," I said aloud. I depressed the lid and polished the initials with my finger tips. "This must have belonged to one of the members of the survey. *C.F.N.* Want to send it on to him?"

Tallis watched me pensively. "No. I'm afraid the two members of the team died here. Just over a year ago."

He told me about the incident. Two Cambridge geologists had negotiated through the Institute for Tallis's help in establishing a camp ten

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miles out in the volcano jungle, where they intended to work for a year, analyzing the planet's core materials. The cost of bringing a vehicle to Murak was prohibitive, so Tallis had transported all the equipment to the camp site and set it up for them.

"I arranged to visit them once a month with power packs, water and supplies. The first time everything seemed all right. They were both over sixty, but standing up well to the heat. The camp and laboratory were running smoothly, and they had a small transmitter they could have used in an emergency.

"I saw them three times altogether. On my fourth visit they had vanished. I estimated that they'd been missing for about a week. Nothing was wrong. The transmitter was working, and there was plenty of water and power. I assumed they'd gone out collecting samples, lost themselves and died quickly in the first noon high."

"You never found the bodies?"

"No. I searched for them, but in the volcano jungle the contours of the valley floors shift from hour to hour. I notified the Institute and two months later an inspector flew in from Ceres and drove out to the site with me. He certified the deaths, told me to dismantle the camp and store it here. There were a few personal things, but I've heard nothing from any friends or relatives."

"Tragic," I commented. I closed the tape recorder and carried it into the shed. We walked back to the cabin. It was an hour to noon, and the parabolic sun bumper over the roof was a bowl of liquid fire.

I said to Tallis: "What on earth were they hoping to catch in the volcano jungle? The sonic trip was set."

"Was it?" Tallis shrugged. "What are you suggesting?"

"Nothing. It's just curious. I'm surprised there wasn't more of an investigation."

"Why? To start with, the fare from Ceres is £800, over £3000 from Earth. They were working privately. Why should anyone waste time and money doubting the obvious?"

I wanted to press Tallis for detail, but his last remark seemed to close the episode. We ate a silent lunch, then went out on a tour of the solar farms, replacing burnt-out thermocouples. I was left with a vanished tape, two deaths, and a silent teasing suspicion that linked them neatly together.

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Over the next days I began to watch Tallis more closely, waiting for another clue to the enigma growing around him.

I did learn one thing that astonished me.

I had asked him about his plans for the future; these were indefinite—he said something vague about a holiday, nothing he anticipated with any eagerness, and sounded as if he had given no thought whatever to his retirement. Over the last few days, as his departure time drew closer, the entire focus of his mind became fixed upon the volcano jungle; from dawn until late into the night he sat quietly in his chair, staring out at the ghostless panorama of disintegrating cones, adrift in some private time sea.

"When are you coming back?" I asked with an attempt at playfulness; curious why he was leaving Murak at all.

He took the question seriously. "I'm afraid I won't be. Fifteen years is long enough, just about the limit of time one can spend continuously in a single place. After that one gets institutionalised—"

"Continuously?" I broke in. "You've had your leaves?"

"No, I didn't bother. I was busy here."

"Fifteen years!" I shouted. "Good God, why? In this of all places! And what do you mean, 'busy?' You're just sitting here, waiting for nothing. What are you supposed to be watching for, anyway?"

Tallis smiled evasively, started to say something and then thought better of it.

The questions pressed round him. What *was* he waiting for? Were the geologists still alive? Was he expecting them to return, or make some signal? As I watched him pace about the cabin on his last morning I was convinced there was something he couldn't quite bring himself to tell me. Almost melodramatically he watched out over the desert, delaying his departure until the thirty-minute take-off siren hooted from the port. As we climbed into the half-track I fully expected the glowing spectres of the two geologists to come looming out of the volcano jungle, uttering cries of murder and revenge.

He shook my hand carefully before he went aboard. "You've got my address all right? You're quite sure?" For some reason, which confused my cruder suspicions, he had made a special point of ensuring that both I and the Institute would be able to contact him.

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"Don't worry," I said. "I'll let you know if it rains."

He looked at me sombrely. "Don't wait too long." His eyes strayed past my head towards the southern horizon, through the sand-haze to the endless sea of cones. He added: "Two million years is a long time."

I took his arm as we walked to the ramp. "Tallis," I asked quietly, "what are you watching for? There's something, isn't there?"

He pulled away from me, collected himself. "What?" he said shortly, looking at his wrist-watch.

"You've been trying to tell me all week," I insisted. "Come on, man."

He shook his head abruptly, muttered something about the heat and stepped quickly through the lock.

I started to shout after him: "Those two geologists are out there . . . !" but the five-minute siren shattered the air and by the time it stopped Tallis had disappeared down the companionway and crew-men were shackling on the launching gantry and sealing the cargo and passenger locks.

I stood at the edge of the port as the ship cleared its take-off check, annoyed with myself for waiting until the last impossible moment to press Tallis for an explanation. Half an hour later he was gone.

Over the next few days Tallis began to slide slowly into the back of my mind. I gradually settled into the observatory, picked out new routines to keep time continuously on the move. Mayer, the metallurgist down at the mine, came over to the cabin most evenings to play chess and forget his pitifully low extraction rates. He was a big, muscular fellow of thirty-five who loathed Murak's climate, geology and bad company, a little crude but the sort of tonic I needed after an overdose of Tallis.

Mayer had met Tallis only once, and had never heard about the deaths of the two geologists.

"Damned fools, what were they looking for? Nothing to do with geology, Murak hasn't got one."

Pickford the old agent down at the depot, was the only person on Murak who remembered the two men, but time had garbled his memories.

"Salesmen, they were," he told me, blowing into his pipe. "Tallis did

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the heavy work for them. Should never have come here, trying to sell all those books."

"Books?"

"Cases full. Bibles, if I recall."

"Text-books," I suggested. "Did you see them?"

"Sure I did," he said, puttering to himself. "Guinea moroccos." He jerked his head sharply. "You won't sell them here, I told them."

It sounded exactly like a dry piece of academic humour. I could see Tallis and the two scientists pulling Pickford's leg, passing off their reference library as a set of commercial samples.

I suppose the whole episode would eventually have faded, but Tallis's charts kept my interest going. There were about twenty of them, half million aerials of the volcano jungle within a fifteen-mile radius of the observatory. One of them was marked with what I assumed to be the camp site of the geologists and alternative routes to and from the observatory. The camp was just over ten miles away, across terrain that was rough but not over-difficult for a tracked car.

I still suspected I was getting myself wound up over nothing. A meaningless approach arrow on the charts, the faintest suggestion of a cryptic 'X', and I should have been off like a rocket after a geldspar mine or two mysterious graves. I was almost sure that Tallis had not been responsible, either by negligence or design, for the deaths of the two men, but that still left a number of unanswered questions.

The next clear day I checked over the half-track, strapped a flare pistol into my knee holster and set off, warning Pickford to listen out for a May Day call on the Chrysler's transmitter.

It was just after dawn when I gunned the half-track out of the observatory compound and headed up the slope between two battery farms, following the route mapped out on the charts. Behind me the telescope swung slowly on its bogies, tirelessly sweeping its great steel ear through the Cepheid talk. The temperature was in the low seventies, comfortably cool for Murak, the sky a fresh cerise, broken by lanes of indigo that threw vivid violet lights on the drifts of grey ash on the higher slopes of the volcano jungle.

The observatory soon fell behind, obscured by the exhaust dust. I passed the water synthesiser, safely pointed at ten thousand tons of

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silicon hydrate, and within twenty minutes reached the nearest cone, a white broad-backed giant two-hundred feet high, and drove round it into the first valley. Fifty feet across at their summits, the volcanos jostled together like a herd of enormous elephants, separated by narrow dust-filled valleys, sometimes no more than a hundred yards apart, here and there giving way to the flat mile-long deck of a fossil lava lake. Wherever possible the route took advantage of these, and I soon picked up the tracks left by the Chrysler on its trips a year earlier.

I reached the site in three hours. What was left of the camp stood on a beach overlooking one of the lakes, a dismal collection of fuel cylinders, empty cold stores and water tanks sinking under the tides of dust washed up by the low thermal winds. On the far side of the lake the violet-capped cones of the volcanos ranged southwards. Behind, a crescent of sharp cliffs cut off half the sky.

I walked round the site, looking for some trace of the two geologists. A battered tin field-desk lay on its side, green paint blistered and scratched. I turned it over and pulled out its drawers finding nothing except a charred notebook and a telephone, the receiver melted solidly into its cradle.

Tallis had done his job too well.

The temperature was over 100° by the time I climbed back into the half-track and a couple of miles ahead I had to stop as the cooling unit was draining power from the spark plugs and stalling the engine. The outside temperature was 130°, the sky a roaring shield, reflected in the slopes around me so that they seemed to stream with molten wax. I sealed all the shutters and changed into neutral, even then having to race the ancient engine to provide enough current for the cooler. I sat there for over an hour in the dim gloom of the dashboard, ears deadened by the engine roar, right foot cramping, cursing Tallis and the two geologists.

That evening I unfurled some crisp new vellum, flexed my slide rule and determined to start work on my thesis.

One afternoon two or three months later, as we turned the board between chess games, Mayer remarked: "I saw Pickford this morning. He told me he had some samples to show you."

"T.V. tapes?"

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"Bibles, I thought he said."

I looked in on Pickford the next time I was down at the settlement. He was hovering about in the shadows behind the counter, white suit dirty and unpressed.

He puffed smoke at me. "Those salesmen," he explained. "You were enquiring about. I told you they were selling Bibles."

I nodded. "Well?"

"I kept some."

I put out my cigarette. "Can I see them?"

He gestured me round the counter with his pipe. "In the back."

I followed him between the shelves, loaded with fans, radios and T.V.-scopes, all outdated models imported years earlier to satisfy the boom planet Murak had never become.

"There it is," Pickford said. Standing against the back wall of the depot was a three-by-three wooden crate, taped with metal bands. Pickford ferretted about for a wrench. "Thought you might like to buy some."

"How long has it been here?"

"About a year. Tallis forgot to collect it. Only found it last week."

Doubtful, I thought: more likely he was simply waiting for Tallis to be safely out of the way. I watched while he pried off the lid. Inside was a tough brown wrapping paper. Pickford broke the seals and folded the sides back carefully, revealing a layer of black morocco-bound volumes.

I pulled out one of them and held the heavily ribbed spine up to the light.

It was a Bible, as Pickford had promised. Below it were a dozen others.

"You're right," I said. Pickford pulled up a radiogram and sat down, watching me.

I looked at the Bible again. It was in mint condition, the King James Authorised Version. The marbling inside the end-boards was unmarked. A publisher's ticket slipped out onto the floor, and I realized that the copy had hardly come from a private library.

The bindings varied slightly. The next volume I pulled out was a copy of the Vulgate.

"How many crates did they have altogether?" I asked Pickford.

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"Bibles? Fourteen, fifteen with this one. They ordered them all after they got here. This was the last one." He pulled out another volume and handed it to me. "Good condition, eh?"

It was a Koran.

I started lifting the volumes out and got Pickford to help me sort them on the shelves. When we counted them up there were ninety in all: thirty-five Holy Bibles (twenty-four Authorised Versions and eleven Vulgates) fifteen copies of the Koran, five of the Talmud, ten of the Bhagavat Gita and twenty-five of the Upanishads.

I took one of each and gave Pickford a £10 note.

"Any time you want some more," he called after me. "Maybe I can arrange a discount." He was chuckling to himself, highly pleased with the deal, one up on the salesmen.

When Meyer called round that evening he noticed the six volumes on my desk.

"Pickford's samples," I explained. I told him how I had found the crate at the depot and that it had been ordered by the geologists after their arrival. "According to Pickford they ordered a total of fifteen crates. All Bibles."

"He's senile."

"No. His memory is good. There were certainly other crates because this one was sealed and he knew it contained Bibles."

"Damned funny. Maybe they were salesmen."

"Whatever they were they certainly weren't geologists. Why did Tallis say they were? Anyway, why didn't he ever mention that they had ordered all these Bibles?"

"Perhaps he'd forgotten?"

"Fifteen crates? Fifteen crates of Bibles? Heavens above, what did they do with them?"

Mayer shrugged. He went over to the window. "Do you want me to radio Ceres?"

"Not yet. It still doesn't add up to anything."

"There might be a reward. Probably a big one. God, I could go home!"

"Relax. First we've got to find out what these so-called geologists were doing here, why they ordered this fantastic supply of Bibles. One

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thing: whatever is was, I swear Tallis knew about it. Originally I thought they might have discovered a geldspar mine and been double-crossed by Tallis—that sonic trip was suspicious. Or else that they'd deliberately faked their own deaths so that they could spend a couple of years working the mine, using Tallis as their supply source. But all these Bibles mean we must start thinking in completely different categories."

Round the clock for three days, with only short breaks for sleep hunched in the Chrysler's driving seat, I systematically swept the volcano jungle, winding slowly through the labyrinth of valleys, climbing to the crest of every cone, carefully checking every exposed quartz vein, every rift or gulley that might hide what I was convinced was waiting for me.

Mayer deputised at the observatory, driving over every afternoon. He helped me recondition an old diesel generator in one of the storage domes and we lashed it on to the back of the half-track to power the cabin heater needed for the —30° nights and the three big spotlights fixed on the roof, providing a 360° traverse. I made two trips with a full cargo of fuel out to the camp site, and made that my base.

Across the thick glue-like sand of the volcano jungle, we calculated, a man of sixty could walk at a maximum of one mile an hour, and spend at most two hours in 70° or above sunlight. That meant that whatever there was to find would be within twelve square miles of the camp site, three square miles if we included a return journey.

I searched the volcanos as exactingly as I could, marking each cone and the adjacent valleys on the charts as I covered them, at a steady five miles an hour, the great engine of the Chrysler roaring ceaselessly, from noon, when the valleys filled with fire and seemed to run with lava again, round to midnight, when the huge cones became enormous mountains of bone, sombre graveyards presided over by the fantastic colonnades and hanging galleries of the sand reefs, suspended from the lake rims like inverted cathedrals.

I forced the Chrysler on, swinging the bumpers to uproot any suspicious crag or boulder that might hide a mine shaft, ramming through huge drifts of fine white sand that rose in soft clouds around the half-track like the dust of powdered silk.

I found nothing. The reefs and valleys were deserted, the volcano slopes untracked, craters empty, their shallow floors littered with

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meteor debris, rock sulphur and cosmic dust.

I decided to give up just before dawn on the fourth morning, after waking from a couple of hours of cramped and restless sleep.

"I'm coming in now," I reported to Mayer over the transmitter. "There's nothing out here. I'll collect what fuel there is left from the site and see you for breakfast."

Dawn had just come up as I reached the site. I loaded the fuel cans back onto the half-track, switched off the spotlights and took what I knew would be my last look round. I sat down at the field desk and watched the sun arcing upwards through the cones across the lake. Scooping a handful of ash off the desk, I scrutinised it sadly for geldspar.

"Prime archezoic loam," I said, repeating Tallis's words aloud to the dead lake. I was about to spit on it, more in anger than in hope, when some of the tumblers in my mind started to click.

About five miles from the far edge of the lake, silhouetted against the sunrise over the volcanos, was a long 100-foot high escarpment of hard slate-blue rock that lifted out of the desert bed and ran for about two miles in a low clean sweep across the horizon, disappearing among the cones in the south-west. Its outlines were sharp and well-defined, suggesting that its materials pre-dated the planet's volcanic period. The escarpment sat squarely across the desert, gaunt and rigid, and looked as if it had been there since Murak's beginning, while the soft ashy cones and grey hillocks around it had known only the planet's end.

It was no more than an uninformed guess, but suddenly I would have bet my entire two years' salary that the rocks of the escarpment were archezoic. It was about three miles outside the area I had been combing, just visible from the observatory.

The vision of a geldspar mine returned sharply!

The lake took me nearly half-way there. I raced the Chrysler across it at forty, wasted thirty minutes picking a route through an elaborate sand reef, and then entered a long steeply walled valley which led directly towards the escarpment.

A mile away I saw that the escarpment was not, as it first seemed, a narrow continuous ridge, but a circular horizontal table. A curious

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feature was the almost perfect flatness of the table top, as if it had been deliberately levelled by a giant sword. Its slides were unusually symmetrical; they sloped at exactly the same angle, about 35°, and formed a single cliff unbroken by fissures or crevices.

I reached the table in an hour, parked the half-track at its foot and looked up at the great rounded flank of dull blue rock sloping away from me, rising like an island out of the grey sea of the desert floor.

I changed down into bottom gear and floored the accelerator. Steering the Chrysler obliquely across the slope to minimise the angle of ascent, I roared slowly up the side, tracks skating and racing, swinging the half-track around like a frantic pendulum.

Scaling the crest, I levelled off and looked out of a plateau about two miles in diameter, bare except for a light blue carpet of cosmic dust.

In the centre of the plateau, at least a mile across, was an enormous metallic lake, heat ripples spiralling upwards from its dark smooth surface.

I edged the half-track forward, head out of the side window, watching carefully, holding down the speed that picked up too easily. There were no meteorites or rock fragments lying about; presumably the lake surface cooled and set at night, to melt and extend itself as the temperature rose the next day.

Although the roof seemed hard as steel I stopped about 300 yards from the edge, cut the engine and climbed up onto the cabin.

The shift of perspective was slight but sufficient. The lake vanished, and I realized I was looking down at a shallow basin, about half a mile wide, scooped out of the roof.

I swung back into the cab and slammed in the accelerator. The basin, like the table top, was a perfect circle, sloping smoothly to the floor about one hundred feet below its rim, in imitation of a volcanic crater.

I braked the half-track at the edge and jumped out.

Four hundred yards away, in the basin's centre, five gigantic rectangular slabs of stone reared up from a vast pentagonal base.

This, then, was the secret Tallis had kept from me.

The basin was empty, the air warmer, strangely silent after three days of the Chrysler's engine roaring inside my head.

I lowered myself over the edge and began to walk down the slope

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towards the great monument in the centre of the basin. For the first time since my arrival on Murak I was unable to see the desert and the brilliant colours of the volcano jungle. I had strayed into a pale blue world, as pure and exact as a geometric equation, composed of the curving floor, the pentagonal base and the five stone rectangles towering up into the sky like the temple of some abstract religion.

It took me nearly three minutes to reach the monument. Behind me, on the sky-line, the half-track's engine steamed faintly. I went up to the base stone, which was a yard thick and must have weighed over a thousand tons, and placed my palms on its surface. It was still cool, the thin blue grain closely packed. Like the megaliths standing on it, the pentagon was unornamented and geometrically perfect.

I heaved myself up and approached the nearest megalith. The shadows around me were enormous parallelograms, their angles shrinking as the sun blazed up into the sky. I walked slowly round into the centre of the group, dimly aware that neither Tallis nor the two geologists could have carved the megaliths and raised them onto the pentagon, when I saw that the entire inner surface of the nearest megalith was covered by row upon row of finely chiselled hieroglyphs.

Swinging round, I ran my hands across its surface. Large patches had crumbled away, leaving a faint indecipherable tracery, but most of the surface was intact, packed solidly with pictographic symbols and intricate cuneiform glyphics that ran down it in narrow columns.

I stepped over to the next megalith. Here again, the inner face was covered with tens of thousands of minute carved symbols, the rows separated by finely cut dividing rules that fell the full fifty-foot height of the megalith.

There were at least a dozen languages, all in alphabets I had never seen before, strings of meaningless ciphers among which I could pick out odd cross-hatched symbols that seemed to be numerals, and peculiar serpentine forms that might have represented human figures in stylised poses.

Suddenly my eye caught:

CYR*RK VII A*PHA LEP**IS *D 1317

Below was another, damaged but legible.

AMEN*TEK LC*V *LPHA LE*ORIS AD 13**

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There were blanks among the letters, where time had flaked away minute grains of the stone.

My eyes raced down the column. There were a score more entries:

PONT*AR*H *CV	ALPH* L*PORIS	A* *318
MYR*K LV*	A**HA LEPORI*	AD 13*9
KYR** XII	ALPH* LEP*RIS	AD 1*19
.....	.....	.....
.....	.....	.....

The list of names, all from Alpha Leporis, continued down the column. I followed it to the base, where the names ended three inches from the bottom, then moved along the surface, across rows of hieroglyphs, and picked up the list three or four columns later.

M*MARYK XX*V	A*PHA LEPORI*	AD 1389
CYRARK IX	ALPHA *EPORIS	AD 1390
.....	.....	.....

I went over to the megalith on my left and began to examine the inscriptions carefully.

Here the entries read:

MINYS-259	DELT* ARGUS	AD 1874
TYLNYS-413	DELTA ARGUS	*D 1874
.....	.....	.....

There were fewer blanks; to the right of the face the entries were more recent, the lettering sharper. In all there were five distinct languages, four of them, including Earth's, translations of the first entry running down the left-hand margin of each column.

The third and fourth megaliths recorded entries from Gamma Grus and Beta Trianguli. They followed the same pattern, their surfaces divided into eighteen-inch wide columns, each of which contained five rows of entries, the four hieroglyphic languages followed by Earth's, recording the same minimal data in the same terse formula: Name—Place—Date.

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I had looked at four of the megaliths. The fifth stood with its back to the sun, its inner face hidden.

I walked over to it, crossing the oblique panels of shadow withdrawing to their sources, curious as to what fabulous catalogue of names I should find.

The fifth megalith was blank.

My eyes raced across its huge unbroken surface, marked only by the quarter-inch deep grooves of the dividing rules some thoughtful master mason from the stars had chiselled to tabulate the entries from Earth that had never come.

I returned to the other megaliths and for half an hour read at random, arms outstretched involuntarily across the great inscription panels, finger tips tracing the convulutions of the hieroglyphs, seeking among the thousands of signatures some clue to the identity and purpose of the four stellar races.

COPT*C LEAGUE MLV	BETA TRIANGULI	*D 1723
ISARI* LEAGUE* VII	BETA *RIANGULI	AD 1724
MAR-5-GO	GAMMA GRUS	AD 1959
VEN-7-GO	GAMMA GRUS	AD 1960
TETRARK XII	ALPHA LEPORIS	AD 2095

Dynasties recurred again and again, Cyrark's, Minys-'s, -Go's, separated by twenty- or thirty-year intervals that appeared to be generations. Before AD 1200 all entries were illegible. This represented something over half the total. The surfaces of the megaliths were almost completely covered, and initially I assumed that the first entries had been made roughly 2200 years earlier, shortly after the birth of Christ. However the frequency of the entries increased algebraically: in the 15th century there were one or two a year, by the 20th century there were five or six, and by the present year the number varied from twenty entries from Delta Argus to over thirty-five from Alpha Leporis.

The last of these, at the extreme bottom right corner of the megalith, was:

CYRARK CCCXXIV	ALPHA LEPORIS	AD 2218

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The letters were freshly incised, perhaps no more than a day old, even a few hours. Below, a free space of two feet reached to the floor.

Breaking off my scrutiny, I jumped down from the base stone and carefully searched the surrounding basin, sweeping the light dust carpet for vehicle or foot marks, the remains of implements or scaffolding.

But the basin was empty, the dust untouched except for the single file of prints leading down from the half-track.

I was sweating uncomfortably, and the thermo-alarm strapped to my wrist rang, warning me that the air temperature was 85°, ninety minutes to noon. I re-set it to 100°, took a last look round the five megaliths, and then made my way back to the half-track.

Heat waves raced and glimmered round the rim of the basin, and the sky was a dark inflamed red, mottled by the thermal pressure fields massing overhead like storm clouds. I jogged along at a half run, in a hurry to contact Mayer. Without his confirmation the authorities on Ceres would treat my report as the fantasy of a sand-happy lunatic. In addition, I wanted him to bring his camera; we could develop the reels within half an hour and radio a dozen stills as indisputable proof.

More important, I wanted someone to share the discovery, provide me with at least some cover in numbers. The frequency of entries on the megaliths, and the virtual absence of any further space—unless the reverse sides were used, which seemed unlikely—suggested a climax was soon to be reached, probably the climax for which Tallis had been waiting. Hundreds of entries had been made during his fifteen years on Murak; watching all day from the observatory he must have seen every landing.

As I swung into the half-track the emergency light on the transceiver above the windscreen was pulsing insistently. I switched to audio and Mayer's voice snapped into my ear.

"Quaine? Is that you? Where the hell are you, man? I nearly put out a May Day for you!"

He was at the camp site. Calling in from the observatory when I failed to arrive, he assumed I had broken down and abandoned the half-track, and had come out searching for me.

I picked him up at the camp site half an hour later, retroversed the tracks in a squealing circle of dust and kicked off again at full throttle.

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Mayer pressed me all the way back but I told him nothing, driving the Chrysler hard across the lake, paralleling the two previous sets of tracks and throwing up a huge cloud of dust 150 feet into the air. It was now over 95°, and the ash hills in the valley at the end of the lake were beginning to look angry and boiled.

Eager to get Mayer down into the basin, and with my mind spinning like a disintegrating flywheel, it was only as the half-track roared up the table slope that I felt a first chilling pang of fear. Through the windscreen I hesitantly scanned the tilting sky. Soon after reaching the basin we would have to shut down for an hour, two of us crammed together in the fume-filled cabin, deafened by the engine, sitting targets with the periscope blinded by the glare.

The centre of the plateau was a pulsing blur, as the air trapped in the basin throbbed upwards into the sun. I drove straight towards it, Mayer stiffening in his seat. A hundred yards from the basin's edge the air suddenly cleared and we could see the tops of the megaliths. Mayer leapt up and swung out of the door onto the running board as I cut the engine and slammed the half-track to a halt by the rim. We jumped down, grabbing flare pistols and shouting to each other, slid into the basin and sprinted through the boiling air to the megaliths looming up in the centre.

I half-expected to find a reception party waiting for us, but the megaliths were deserted. I reached the pentagon fifty yards ahead of Mayer, climbed up and waited for him, gulping in the molten sunlight.

I helped him up and led him over to one of the megaliths, picked a column and began to read out the entries. Then I took him round the others, recapitulating everything I had discovered, pointing out the blank tablet reserved for Earth.

Mayer listened, broke away and wandered off, staring up dully at the megaliths.

"Quaine, you've really found something," he muttered softly. "Crazy, must be some sort of temple."

I followed him round, wiping the sweat off my face and shielding my eyes from the glare reflected off the great slabs.

"Look at them, Mayer! They've been coming here for ten thousand years! Do you know what this means?"

Mayer tentatively reached out and touched one of the megaliths.

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"'Argive League xxv . . .Beta Tri-'" he read out. "There are others then. God Almighty. What do you think they look like?"

"What does it matter? Listen. They must have levelled this plateau themselves, scooped out the basin and cut these tablets from the living rock. Can you even imagine the tools they used?"

We crouched in the narrow rectangle of shadow in the lee of the sunward megalith. The temperature climbed, forty-five minutes to noon, 105°.

"What is all this, though?" Mayer asked. "Their burial ground?"

"Unlikely. Why leave a tablet for Earth? If they've been able to learn our language they'd know the gesture was pointless. Anyway, elaborate burial customs are a sure sign of decadence, and there's something here that suggests the exact opposite. I'm convinced they expect that some time in the future we'll take an active part in whatever is celebrated here."

"Maybe, but what? Think in new categories, remember?" Mayer squinted up at the megaliths. "This could be anything from an ethnological bill of lading to the guest list at an all-time cosmic house party."

He noticed something, frowned, then suddenly wrenched away from me. He leapt to his feet, pressed his hands against the surface of the slab behind us and ran his eyes carefully over the grain.

"What's worrying you?" I asked.

"Shut up!" he snapped. He scratched his thumbnail at the surface, trying to dislodge a few grains. "What are you talking about, Quaine, these slabs aren't made of stone!"

He slipped out his jack knife, sprung the blade and stabbed viciously at the megalith, slashing a two-foot long groove across the inscriptions.

I stood up and tried to restrain him but he shouldered me away and ran his finger down the groove, collecting a few fragments.

He turned on me angrily. "Do you know what this is? *Tantalum oxide!* Pure ninety-nine per cent paygold. No wonder our extraction rates are fantastically small. I couldn't understand it, but these people—" he jerked his thumb furiously at the megaliths "—have damn well milked the planet dry to build these crazy things!"

It was 115°. The air was beginning to turn yellow and we were breathing in short exhausted pants.

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"Let's get back to the truck," I temporised. Mayer was losing control, carried away by his rage. With his big burly shoulders hunched in anger, staring up blindly at the five great megaliths, face contorted by the heat, he looked like an insane sub-man pinned in the time trophy of a galactic super-hunter.

He was ranting away as we stumbled through the dust towards the half-track.

I began to scale the slope up to the rim. The next hour in the cabin was going to be difficult, cooped up with a maniac eager to tear the stars apart. The butt of the flare pistol swinging on my knee caught my eye; a poor weapon, though, against Mayer's physique.

I had climbed almost up to the rim when I heard his feet thudding through the dust. I started to turn round just as he was on me, swinging a tremendous blow that struck me on the back of the head. I fell, watched him close in and then stood up, my skull exploding, and grappled with him. We stumbled over each other for a moment, the walls of the basin diving around us like a switchback, and then he knocked my hands away and smashed a heavy right cross into my face.

I fell on my back, stunned by the pain; the blow seemed to have loosened my jaw and damaged all the bones on the left side of my face. I managed to sit up and saw Mayer running past. He reached one hand to the rim, pulled himself up and lurched over to the half-track.

I dragged the flare pistol out its holster, snapped back the bolt and trained it at Mayer. He was thirty yards away, turning the near-side door handle. I held the butt with both hands and fired as he opened the door. He looked round at the sharp detonation and watched the silver shell soar swiftly through the air towards him, ready to duck.

The shell missed him by three feet and exploded against the cabin roof. There was a brilliant flash of light that resolved itself a fraction of a second later into a fireball of incandescent magnesium vapour ten feet in diameter. This slowly faded to reveal the entire driving cabin, bonnet and forward side-panels of the half-track burning strongly with a loud, heavy crackling. Out of this maelstrom suddenly plunged the figure of Mayer, moving with violent speed, blackened arms across his face. He tripped over the rim, catapulted down into the dust and

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rolled for about twenty yards before he finally lay still, a shapeless bundle of smoking rags.

I looked numbly at my wristwatch. It was ten minutes to noon. The temperature was 130°. I pulled myself to my feet and trudged slowly up the slope towards the half-track, head thudding like a volcano, uncertain whether I would be strong enough to lift myself out of the basin.

When I was ten feet from the rim I could see that the wind-screen of the half-track had melted and was dripping like treacle onto the dashboard.

I dropped the flare pistol and turned round.

It was five minutes to noon. Around me, on all sides, enormous sheets of fire were cascading slowly from the sky, passing straight through the floor of the basin, and then rising again in an inverted torrent. The megaliths were no longer visible, screened by curtains of brilliant light, but I groped forward, following the slope, searching for what shade would still be among them.

Twenty yards further on I saw that the sun was directly overhead. It expanded until the disc was as wide as the basin, and then lowered itself to about ten feet above my head, a thousand rivers of fire streaming across its surface in all directions. There was a terrifying roaring and barking noise, overlayed by a dull, massive pounding as all the volcanos in the vulcano jungle began to erupt again. I walked on, in a dream, shuffling slowly, eyes closed to shut out the furnace around me. Then I discovered that I was sitting on the floor of the basin, which started to spin, setting up a high-pitched screaming.

A strange vision swept like a flame through my mind.

For aeons I plunged, spiralling weightlessly through a thousand whirling vortexes, swirled and buffeted down chasmic eddies, splayed out across the disintegrating matrix of the continuum, a dreamless ghost in flight from the cosmic Now. *Then a million motes of light prickled the darkness above me, illuminating enormous curving causeways of time and space veering out past the stars to the rim of the galaxy. My dimensions shrank to a metaphysical extension of astral zero, I was propelled upwards to the stars. Aisles of light broke and splintered around me, I passed Aldebaran, soared over Betelgeuse and Vega, zoomed past Antares, finally halted a hundred light years above the crown of Canopus.*

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Epochs drifted. Time massed on gigantic fronts, colliding like crippled universes. Abruptly, the infinite worlds of tomorrow unfolded before me—ten thousand years, a hundred thousand, unnumbered millenia raced past me in a blur of light, an iridescent cataract of stars and nebulae, interlaced by flashing trajectories of flight and exploration,

I entered deep time.

Deep Time: 1,000,000 mega-years. I saw the Milky Way, a wheeling carousel of fire, and Earth's remote descendants, countless races inhabiting every stellar system in the galaxy. The dark intervals between the stars were a continuously flickering field of light, a gigantic phosphorescent ocean, filled with the vibrating pulses of electromagnetic communication pathways.

To cross the enormous voids between the stars they have progressively slowed their physiological time, first ten, then a hundred-fold, so accelerating stellar and galactic time. Space has become alive with transient swarms of comets and meteors, the constellations have begun to dislocate and shift, the slow majestic rotation of the universe itself is at last visible.

Deep Time: 10,000,000 mega-years. Now they have left the Milky Way, which has started to fragment and dissolve. To reach the island galaxies they have further slowed their time schemes by a factor of 10,000, and can thus communicate with each other across vast intergalactic distances in a subjective period of only a few years. Continuously expanding into deep space, they have extended their physiological dependence upon electronic memory banks which store the atomic and molecular patterns within their bodies, transmit them outwards at the speed of light, and later re-assemble them.

Deep Time: 100,000,000 mega-years. They have spread now to all the neighbouring galaxies, swallowing thousands of nebulae. Their time schemes have decelerated a million-fold, they have become the only permanent forms in an ever-changing world. In a single instant of their lives a star emerges and dies, a sub-universe is born, a score of planetary life-systems evolve and vanish. Around them the universe sparkles and flickers with myriad points of light, as untold numbers of constellations appear and fade.

Now, too, they have finally shed their organic forms and are com-

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posed of radiating electromagnetic fields, the primary energy substratum of the universe, complex networks of multiple dimensions, alive with the constant tremor of the sentient messages they carry, bearing the life-ways of the race.

To power these fields, they have harnessed entire galaxies riding the wave-fronts of the stellar explosions out towards the terminal helixes of the universe.

Deep Time: 1,000,000,000, mega-years. They are beginning to dictate the form and dimensions of the universe. To girdle the distances which circumscribe the cosmos they have reduced their time period to 0.00000001 of its previous phase. The great galaxies and spiral nebulae which once seemed to live for eternity are now of such brief duration that they are no longer visible. The universe is now almost filled by the great vibrating mantle of ideation, a vast shimmering harp which has completely translated itself into pure wave form, independent of any generating source.

As the universe pulses slowly, its own energy vortices flexing and dilating, so the force-fields of the ideation mantle flex and dilate in sympathy, growing like an embryo within the womb of the cosmos, a child which will soon fill and consume its parent.

Deep Time: 10,000,000,000 mega-years. The ideation-field has now swallowed the cosmos, substituted its own dynamic, its own spatial and temporal dimensions. All primary time and energy fields have been engulfed. Seeking the final extension of itself within its own bounds the mantle has reduced its time period to an almost infinitessimal 0.00000000... *n* of its previous interval. Time has virtually ceased to exist, the ideation-field is nearly stationary, infinitely slow eddies of sentience undulating outward across its mantles.

Ultimately it achieves the final predicates of time and space, eternity and infinity, and slows to absolute zero. Then with a cataclysmic eruption it disintegrates, no longer able to contain itself. Its vast energy patterns begin to collapse, the whole system twists and thrashes in its mortal agony, thrusting outwards huge cataracts of fragmenting energy. In parallel, time emerges.

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Out of this debris the first proto-galactic fields are formed, coalesing to give the galaxies and nebulae, the stars encircled by their planetary bodies. Among these, from the elemental seas, based on the carbon atom, emerge the first living forms.

So the cycle renews itself . . .

The stars swam, their patterns shifting through a dozen constellations, novas flooded and darkness like blinding arcs, revealing the familiar profiles of the Milky Way, the constellations Orion, Coma Berenices, Cygnus.

Lowering my eyes from the storm-tossed sky I saw the five megaliths. I was back on Murak. Around me the basin was filled with a great concourse of silent figures, ranged upwards along the darkened slopes, shoulder to shoulder in endless ranks, like spectators in a spectral arena.

Beside me a voice spoke, and it seemed to have told me everything I had witnessed of the great cosmic round.

Just before I sank into consciousness for the last time I tried to ask the question ever-present in my drifting mind, but it answered before I spoke, the star-littered sky, the five megaliths and the watching multitude spinning and swirling away into a dream as it said:

"Meanwhile we wait here, at the threshold of time and space, celebrating the identity and kinship of the particles within our bodies with those of the sun and the stars, of our brief private times with the vast periods of the galaxies, with the total unifying time of the cosmos . . ."

I woke lying face downwards in the cool evening sand, shadows beginning to fill the basin, the thermal winds blowing a crisp refreshing breeze across my head and back. Below, the megaliths rose up into the thin blue air, their lower halves cut by the shadow-line of the sinking sun. I lay quietly, stirring my legs and arms tentatively, conscious of the gigantic rifts that had been driven through my mind. After a few minutes I pulled myself to my feet and gazed round at the slopes curving away from me, the memory of the insane vision vivid in my mind.

The vast concourse that had filled the basin, the dream of the cosmic cycle, the voice of my interlocutor—were still real to me, a world in parallel I had just stepped from, and the door to which hung some-

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where in the air around me.

Had I dreamed everything, assembling the entire fantasy in my mind as I lay raving in the noon heat, saved by some thermodynamic freak of the basin's architecture?

I held my thermo-alarm up to the fading light, checking the maximum and minimum levels. The maximum read: 162°. Yet I had survived! I felt relaxed, restored, almost rejuvenated. My hands and face were unburnt—a temperature of over 160° would have boiled the flesh off my bones, left my skin a blackened crisp.

Over my shoulder I noticed the half-track standing on the rim. I ran towards it, for the first time remembering Mayer's death. I felt my cheek-bones, testing my jaw muscles. Surprisingly Mayer's heavy punches had left no bruise.

Mayer's body had gone! A single line of footsteps led down from the half-track to the megaliths, but otherwise the carpet of light blue dust was untouched. Mayer's prints, all marks of our scuffle, had vanished.

I quickly scaled the rim and reached the half-track, peering under the chassis and between the tracks. I flung open the cabin door, found the compartment empty.

The windscreen was intact. The paintwork on the door and bonnet was unmarked, the metal trim around the windows unscratched. I dropped to my knees, vainly searched for any flakes of magnesium ash. On my knee the flare pistol lodged securely in its holster, a primed star shell in the breach.

I left the Chrysler, jumped down into the basin and ran over to the megaliths. For an hour I paced round them, trying to resolve the countless questions that jammed my mind.

Just before I left I went over to the fifth tablet. I looked up at the top left corner, wondering whether I should have qualified for its first entry had I died that afternoon.

A single row of letters, filled with shadow by the falling light, stood out clearly.

I stepped back and craned up at them. There were the symbols of the four alien languages, and then, proudly against the stars:

CHARLES FOSTER NELSON. EARTH AD 2217

"Tell me, Quaine, where would you like to be when the world ends?"

In the seven years since Tallis first asked me this question I must have

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re-examined it a thousand times. Somehow it seems the key to all the extraordinary events that have happened on Murak, with their limitless implications for the people of Earth (to me a satisfactory answer contains an acceptable statement of one's philosophy and beliefs, an adequate discharge of the one moral debt we owe ourselves and the universe).

Not that the world is about to 'end.' The implication is rather that it has already ended and regenerated itself an infinite number of times, and that the only remaining question is what to do with ourselves in the meantime. The four stellar races who built the megaliths chose to come to Murak. What exactly they are waiting for here I can't be certain. A cosmic redeemer, perhaps, the first sight of the vast mantle of ideation I glimpsed in my vision. Recalling the period of two million years Tallis cited for life to appear on Murak it may be that the next cosmic cycle will receive its impetus here, and that we are advance spectators, five kings attending the genesis of a super-species soon to outstrip us.

That there are others here, invisible and sustained by preternatural forces, is without doubt. Apart from the impossibility of surviving a Murak noon, I certainly didn't remove Mayer's body from the basin and arrange to have him electrocuted by one of the data-processing units at the observatory. Nor did I conceive the vision of the cosmic cycle myself.

It looks as if the two geologists stumbled upon the Waiting Grounds, somehow divined their significance, and then let Tallis in on their discovery. Perhaps they disagreed, as Mayer and I did, and Nelson may have been forced to kill his companion, to die himself a year later in the course of his vigil.

Like Tallis I shall wait here if necessary for fifteen years. I go out to the Grounds once a week and watch them from the observatory the rest of the time. So far I have seen nothing, although two or three hundred more names have been added to the tablets. However, I am certain that whatever we are waiting for will soon arrive. When I get tired or impatient, as I often do, I remember that they have been coming to Murak and waiting here, generation upon generation, for 10,000 years.

Whatever it is, it must be worth waiting for.

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Bass Fishermen will Say I'm Crazy . . . *until they try my method!*

But, after an honest trial, if you're at all like the other men to whom I've told my strange plan, you'll guard it with your last breath.

Don't jump at conclusions. I'm not a manufacturer of any fancy new lure. I have no reels or lines to sell. I'm a professional man and make a good living in my profession. But my all-absorbing hobby is fishing. And, quite by accident, I've discovered how to go to waters that most fishermen say are fished out and come in with a good catch of the biggest bass that you ever saw. The savage old bass that got so big, because they were "wise" to every ordinary way of fishing.

This METHOD is NOT spinning, trolling, casting, fly fishing, trot line fishing, set line fishing, hand line fishing, live bait fishing, jugging, netting, trapping, or seining. No live bait or prepared bait is used. You can carry all of the equipment you need in one hand.

The whole method can be learned in twenty minutes — twenty minutes of fascinating reading. All the extra equipment you need, you can buy locally at a cost of less than a dollar. Yet with it, you can come in after an hour or two of the greatest excitement of your life, with a stringer full. Not one or two miserable 12 or 14 inch over-sized keepers — but five or six real beauties with real poundage behind them. The kind that don't need a word of explanation of the professional skill of the man who caught them. Absolutely legal, too — in every state.

This amazing method was developed by a little group of professional fishermen. Though they were public guides, they rarely divulged their method to their patrons. They used it only when fishing for their own tables. It is possible that no man on your waters has ever **seen it,** ever **heard of it,** or ever **used it.** And when you have given it the first trial, you will be as closed-mouthed as a man who has suddenly discovered a gold mine. Because with this method you can fish within a hundred feet of the best fishermen in the country and pull in ferocious big ones while they come home empty handed. No special skill is required. The method is just as deadly in the hands of a novice as in the hands of an old timer. My method will be disclosed only to those men in each area who will give me their word of honor not to give the method to anyone else.

Send me your name. Let me tell you how you can try out this deadly method of bringing in big bass from your local waters. Let me tell you why I let you try out my unusual method for the whole fishing season without risking a penny of your money. Send your name for details of my money-back trial offer. There is no charge for this information, now or at any other time. Just your name is all I need. But I guarantee that the information I send you will make you a complete skeptic — until you decide to try my method! And then, your own catches will fill you with disbelief. Send your name, today. This will be fun.

ERIC A. FARE, Highland Park 33, Ill.

ERIC A. FARE, Highland Park 33, Illinois

Dear Mr. Fare: Send me complete information without any charge and without the slightest obligation. Tell me how I can learn your method of catching big bass from waters many say are "fished out," even when the old timers are reporting "No Luck."

Name.....

Address.....

City.....Zone.....State.....

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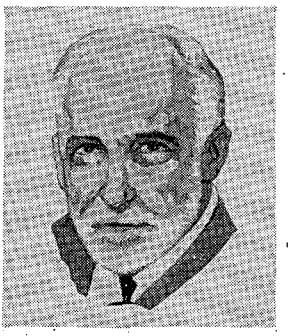
Do You Make These Mistakes in English?

Sherwin Cody's remarkable invention has enabled more than 150,000 people to correct their mistakes in English. Only 15 minutes a day required to improve your speech and writing.

MANY persons say, "Did you hear from him today?" They should say, "Have you heard from him today?" Some spell "calendar," "calender" or "calander." Still others say "between you and I" instead of "between you and me." It is astonishing how often "who" is used for "whom," and how frequently the simplest words are mispronounced. Few know whether to spell certain words with one or two "c's" or "m's" or "r's," or with "ie" or "ei." Most persons use only common words — colorless, flat, ordinary, their speech and their letters are lifeless, monotonous, humdrum. Every time they talk or write they show themselves lacking the essential points of English.

Wonderful New Invention

For many years Mr. Cody studied the problem of creating instinctive habits of using good English. After countless experiments, he finally invented a simple method by which you can acquire a better command of the English language in only 15 minutes a day. Now you can stop making the mistakes which have been hurting you. Students of Mr. Cody's method have secured more improvement in five weeks than previously had been obtained by similar pupils in two years!



SHERWIN CODY

Learn by Habit—Not by Rules

Under old methods, rules are memorized, but correct habits are not formed. Finally the rules themselves are forgotten. The new Sherwin Cody method provides for the formation of correct habits by calling to your attention constantly only the *mistakes you yourself make.*

Only 15 Minutes a Day

Nor is there very much to learn. In Mr. Cody's years of experimenting he brought to light some highly astonishing facts about English.

For instance, statistics show that a list of sixty-nine words (with their repetitions) make *up more than half of all our speech and letter writing.*

Obviously, if one could learn to spell, use, and pronounce these words correctly, one would go far toward eliminating incorrect spelling and pronunciation.

Similarly, Mr. Cody proved that there were no more than one dozen fundamental principles of punctuation. If we mastered these principles there would be no bugbear of punctuation to handicap us in our writing.

Finally, he discovered that twenty-five typical errors in grammar constitute nine-tenths of our everyday mistakes. When one has learned to avoid these twenty-five pitfalls, how readily one can obtain that facility of speech denoting a person of breeding and education!

When the study of English is made so simple it becomes clear that progress can be made in a very short time. *No more than fifteen minutes a day is required.* Fifteen minutes, not of study, but of fascinating practice! Students of Mr. Cody's method do their work in any spare moment they can snatch. They do it riding to work, or at home. They take fifteen minutes from time usually spent in profitless reading or amusement. The results really are phenomenal.

FREE — Book on English

A book explaining Mr. Cody's remarkable method is yours for the asking. If you are ever embarrassed by mistakes in grammar, spelling, punctuation, pronunciation, or if you cannot instantly command the exact words with which to express your ideas, this free book, "How You Can Master Good English — in 15 Minutes a Day," will prove a revelation to you. Send the coupon or a letter or postal card for it now. No agent will call. SHERWIN CODY COURSE IN ENGLISH, 1224 Central Drive, Port Washington, N. Y.

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Please send me, without any obligation on my part, your free book, "How You Can Master Good English — in 15 Minutes a Day." No agent will call.

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